Performance Pro Series
Gas Fryers Models 35 & 45

Service and Parts Manual

FootPrint by Frymaster PRO Series

Frymaster

Frymaster, a member of the Commercial Food Equipment Service Association, recommends using CFESA Certified Technicians.

24-Hour Service Hotline 1-800-551-8633

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IF, DURING THE WARRANTY PERIOD, THE CUSTOMER USES A PART FOR THE ENODIS EQUIPMENT OTHER THAN AN UNMODIFIED NEW OR RECYCLED PART PURCHASED DIRECTLY FROM FRYMASTER AND DEAN, OR ANY OF ITS AUTHORIZED SERVICE CENTERS, AND/OR THE PART BEING USED IS MODIFIED FROM ITS ORIGINAL CONFIGURATION, THIS WARRANTY WILL BE VOID. FURTHER, FRYMASTER AND DEAN AND ITS AFFILIATES WILL NOT BE LIABLE FOR ANY CLAIMS, DAMAGES OR EXPENSES INCURRED BY THE CUSTOMER WHICH ARISE DIRECTLY OR INDIRECTLY, IN WHOLE OR IN PART, DUE TO THE INSTALLATION OF ANY MODIFIED PART AND/OR PART RECEIVED FROM AN UNAUTHORIZED SERVICE CENTER.

NOTICE

This appliance is intended for professional use only and is to be operated by qualified personnel only. A Frymaster/DEAN Factory Authorized Service Center (FASC) or other qualified professional should perform installation, maintenance, and repairs. Installation, maintenance, or repairs by unqualified personnel may void the manufacturer's warranty.

NOTICE

This equipment must be installed in accordance with the appropriate national and local codes of the country and/or region in which the appliance is installed.

NOTICE TO U.S. CUSTOMERS

This equipment is to be installed in compliance with the basic plumbing code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the U.S. Food and Drug Administration.

NOTICE

Drawings and photos used in this manual are intended to illustrate operational, cleaning and technical procedures and may not conform to onsite management operational procedures.

NOTICE TO OWNERS OF UNITS EQUIPPED WITH COMPUTERS

U.S.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation. While this device is a verified Class A device, it has been shown to meet the Class B limits.

CANADA

This digital apparatus does not exceed the Class A or B limits for radio noise emissions as set out by the ICES-003 standard of the Canadian Department of Communications.

Cet appareil numerique n'emet pas de bruits radioelectriques depassany les limites de classe A et B prescrites dans la norme NMB-003 edictee par le Ministre des Communcations du Canada.

⚠ DANGER

Improper installation, adjustment, maintenance or service, and unauthorized alterations or modifications can cause property damage, injury, or death. Read the installation, operating, and service instructions thoroughly before installing or servicing this equipment. Only qualified service personnel may convert this appliance to use a gas other than that for which it was originally configured.

⚠ DANGER

Adequate means must be provided to limit the movement of this appliance without depending upon the gas line connection. Single fryers equipped with legs must be stabilized by installing anchor straps. All fryers equipped with casters must be stabilized by installing restraining chains. If a flexible gas line is used, an additional restraining cable must be connected at all times when the fryer is in use.

⚠ DANGER

The front ledge of the fryer is not a step! Do not stand on the fryer. Serious injury can result from slips or contact with the hot oil.

⚠ DANGER

Do not store or use gasoline or other flammable liquids or vapors in the vicinity of this or any other appliance.

⚠ DANGER

Instructions to be followed in the event the operator smells gas or otherwise detects a gas leak must be posted in a prominent location. This information can be obtained from the local gas company or gas supplier.

⚠ DANGER

The crumb tray in fryers equipped with a filter system must be emptied into a fireproof container at the end of frying operations each day. Some food particles can spontaneously combust if left soaking in certain shortening material.

⚠ WARNING

Do not bang fry baskets or other utensils on the fryer's joiner strip. The strip is present to seal the joint between the fry vessels. Banging fry baskets on the strip to dislodge shortening will distort the strip, adversely affecting its fit. It is designed for a tight fit and should only be removed for cleaning.

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PERFORMANCE PRO SERIES GAS FRYERS MODELS 35 & 45
CHAPTER 1: SERVICE PROCEDURES

1.1 General

Performance Pro Series gas fryers (formerly Master Jet 35- and 45-series fryers) contain a welded stainless steel frypot directly heated by gas flames diffused evenly over its lower surface by ceramic targets. The flames originate from orifices in a U-shaped burner manifold positioned beneath the frypot. They are equipped with either a millivolt gas valve or electromechanical gas valve that regulates gas flow to the manifold. For operating information, refer to the *Performance Pro Series Gas Fryers Models 35 & 45 Installation and Operation* manual (P/N 819-6042). (Furthermore, referred to as the Installation and Operation manual.)

1.1.1 Pilot Ignition

The pilot system is the pilot orifice, pilot hood, and thermopile. The pilot serves two purposes: lighting the burners and heating the thermopile. In operation, the thermopile is in contact with the pilot flame and generates millivolts. The millivolt output passes through a normally closed high-limit switch and energizes the gas valve pilot coil, which opens the pilot valve. If the pilot flame is extinguished, the gas valve pilot coil loses voltage and the pilot valve closes.

In units equipped with 24-volt electromechanical gas valves, a separate 24-volt circuit activated by the fryer power switch provides voltage through the thermostat or controller to the gas valve main coil, which opens the main valve. The main gas valve will not open if the pilot valve is not open. Light the pilot flame manually using a match or the optional built-in piezo ignitor after installing the fryer.

1.1.2 Electronic Ignition

In units configured for electronic ignition, a black ignition module connected to an ignitor assembly replaces the pilot system. The ignition module performs three important functions: supply voltage to the gas valve, provide an ignition spark, and proof the pilot flame. The module contains a 4.5-second time delay circuit and a coil that activates the gas valve. The ignitor assembly consists of a spark plug, a pilot, and a flame sensor element.

At start-up the power switch is placed in the ON position, supplying 12 VDC to the heat control circuitry in the controller or computer and to one side of the heat relay coil on the interface board. If resistance in the temperature probe indicates the temperature in the frypot is below 180°F (82°C), the current flows through a melt cycle circuit where a timer switch alternately closes for 3 seconds and opens for 24 seconds. If the temperature is 180°F (82°C) or above, the current flows through a heat circuit, bypassing the timer switch. In either case, current is supplied to the other leg of the heat relay coil, which closes an electronic switch in the 24 VAC circuit to provide current to the ignition module.

Circuitry in the ignition module sends 24 VAC current to the gas valve via a normally closed high-limit switch and a drain safety switch. Simultaneously, the module causes the ignitor to spark for 4 seconds to light the pilot flame. A flame sensor verifies that the pilot is lit by measuring the flow of microamps through the flame (can vary, averages 1.9 microamps). If the pilot does not light or is extinguished, current to the ignition module is stopped, preventing the main valve from opening, and the ignition module *locks out* until the power switch is turned OFF, then back ON.

1.1.3 Controller Options

Performance Pro gas fryers may be equipped with thermostat controls, analog controllers, digital controllers, basket lift timers, or Computer Magic computers. In fryers equipped with **thermostat control panels**, the fryer and melt cycle are turned on and off using rocker switches and the temperature is set by a knob connected directly to the frypot-mounted thermostat. These units have no interface board. When the melt cycle switch is placed in the ON position, the fryer stays in the melt cycle mode until the switch is manually placed in the OFF position, even if the oil is at setpoint temperature. In units equipped with **thermostat access doors**, the temperature control knob is located behind the hinged front panel. Service procedures for this type of thermostat are slightly different from units with other thermostat controls.

Fryers equipped with other types of controllers have an interface board located in the component shield behind the control panel.

1.1.4 Thermostats and Temperature Probes

Performance Pro gas fryers may have different kinds of thermostats depending on their configuration. Fryers equipped with thermostat controls have an adjustable controlling thermostat. Adjust the temperature at which the thermostat opens and closes by turning the attached knob. The Fenwal controlling thermostat used in these fryers is sensitive to 1° changes in temperature.

Fryers equipped with other types of controls have a temperature probe. In these units, the probe resistance varies directly with the temperature. As the temperature rises, so does the amount of resistance at a rate of approximately 2 ohms for every 1° (F or C) of temperature (see *Probe Resistance Chart*, Section 1.6). Circuitry in the controller monitors the probe resistance and controls burner firing when the resistance exceeds or falls below programmed temperatures (i.e., setpoint). To program temperatures into the fryer, use the keypad on the face of the controller. When testing temperature probes, unplug the 15-pin wiring harness from the controller; otherwise, the reading may be incorrect due to extra resistance.

All open burner fryers are equipped with a high-limit thermostat. If the fryer fails to properly control oil temperature, the high-limit thermostat prevents the fryer from overheating to flash point. The high-limit thermostat acts as a normally closed power switch that opens when exposed to temperatures between 425°F to 450°F (218°C to 232°C). It will automatically reset when the oil temperature drops below 350°F (177°C).

1.2 Moving the Fryer for Servicing

If it is necessary to move the fryer before servicing, complete the following actions:

1. Drain the frypot.

2. Turn off the gas supply to the unit. Unplug any power cords. Disconnect the unit from the gas supply.

3. Remove attached restraining devices, including chain restraints and anchor straps.

4. Relocate the fryer to an appropriate area for servicing.

After servicing is complete:

5. Return the fryer to its original location, reconnect the unit to the gas supply, and open the gas supply valve. Be sure to reattach all restraining devices and plug in all electrical cords.

6. Refill the fryer with oil.

1.3 Diagnostic Procedures

1.3.1 Cleaning the Gas Valve Vent Tube

1. Carefully unscrew the vent tube from the gas valve.

   NOTE: Straighten the vent tube for easy removal.

2. Pass a piece of binding wire (.052-inch diameter) or equivalent through the tube to remove obstructions.

3. Remove the wire and blow through the tube to ensure that it is clear.

4. Reinstall the tube and bend it so that the opening is pointing down.

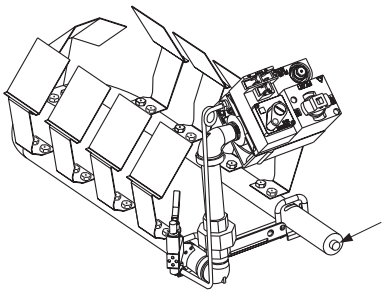
1.3.2 Checking the Burner Manifold Gas Pressure

1. Ensure that the gas valve knob or button is in the OFF position.

2. Remove the pressure tap plug from the end of the manifold.

3. Connect a manometer or pressure gauge to the port.

⚠WARNING
The frypot must be filled with oil or water during this procedure.



4. Place the gas valve in the PILOT position and light. When the burner lights and continues to burn, note the gas pressure reading and compare it to the accompanying tables.

To adjust burner gas pressure:

5. On non-CE valves, remove the cap from the regulator adjustment screw.

6. On all units, increase the setting on the thermostat until the burner comes on.

7. Monitor the gas pressure reading on the manometer or pressure gauge.

35-Series Non-CE Standard Burner Manifold Gas Pressures	
Gas	**Pressure**
Natural	4.0” W.C. 0.87 kPa
Propane	9.0” W.C. 2.24 kPa

45-Series Non-CE Standard Burner Manifold Gas Pressures	
Gas	**Pressure**
Natural	3.5” W.C. 0.73 kPa
Propane	8.25” W.C. 2.05 kPa

35-Series CE Standard Burner Manifold Gas Pressures	
Gas	**Pressure**
Natural Gas Lacq (G20) under 20 mbar	9 mbar
Natural Gas Gronigue* (G25) under 25 mbar	11 mbar
Natural Gas Gronigue* (G20) under 20 mbar	11 mbar
Propane (G31) under 37 or 50 mbar	22.5 mbar
* Belgian G25 and G20 = 9.0 mbar	

45-Series CE Standard Burner Manifold Gas Pressures	
Gas	**Pressure**
Natural Gas Lacq (G20) under 20 mbar	7.5 mbar
Natural Gas Gronigue* (G25) under 25 mbar	10 mbar
Natural Gas Gronigue (G20) under 20 mbar	10 mbar
Propane (G31) under 37 or 50 mbar	20.6 mbar
* Belgian G25 = 7.0 mbar	

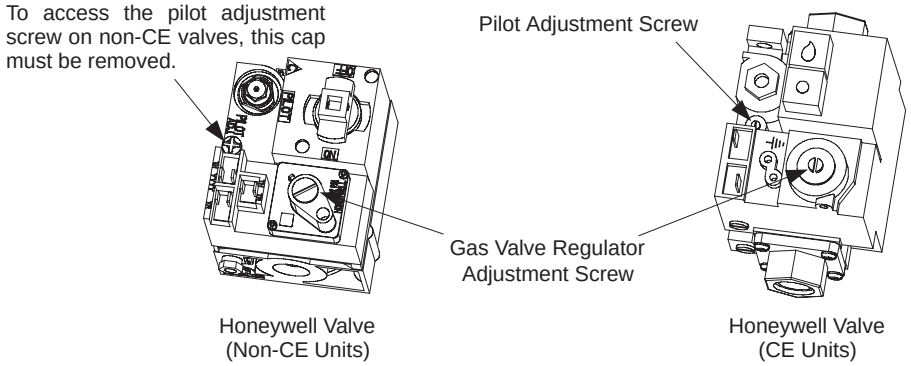
8. Use a flat-head screwdriver to adjust the gas valve regulator adjustment screw to obtain the prescribed pressure written on the rating plate or one of the charts above. (Use the diagram on below to locate this screw.) Turn the screw clockwise to increase gas pressure and counterclockwise to decrease gas pressure.

9. On non-CE units, reinstall the gas valve regulator cap screw when the correct manifold pressure is obtained.

10. Place the gas valve in the OFF position. Remove the fitting from the pressure tap hole and reinstall the pressure tap plug.

11. Place the gas valve in the PILOT position. Re-light and check for any gas leaks.

12. Place the gas valve in the OFF position.


To access the pilot adjustment screw on non-CE valves, this cap must be removed.
Pilot Adjustment Screw
Gas Valve Regulator Adjustment Screw
Honeywell Valve (Non-CE Units)
Honeywell Valve (CE Units)

Locating the gas valve regulator adjustment screw and pilot adjustment screw.

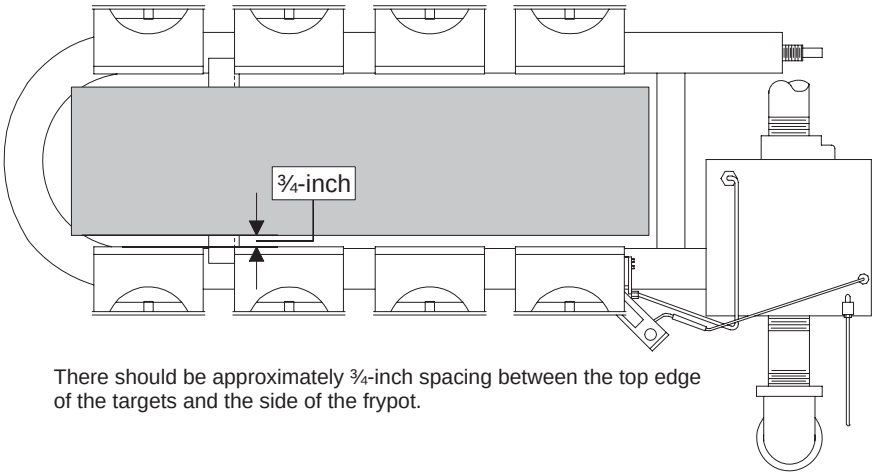
1.3.3 Adjusting the Pilot Flame

1. On non-CE valves, remove the cap covering the pilot adjustment screw. On all valves, use a flat-tipped screwdriver to turn the pilot adjustment screw counterclockwise to increase the length of the flame or clockwise to decrease the length of the flame. (Use the diagram on the previous page to locate this screw.) Adjust the flame to a length of 1- to 1½- inches (25 to 38 mm).

2. On non-CE valves, reinstall the pilot adjustment screw cap.

1.3.4 Adjusting Burner Ceramic Target Spacing and Alignment

Proper spacing of the top edge of the ceramic targets is ¾-inch (13 mm) from the frypot side. To adjust target spacing, bend the brackets away or toward the frypot, as needed. A length of board ¾-inch thick is useful as a gauge to verify spacing and alignment.



There should be approximately ¾-inch spacing between the top edge of the targets and the side of the frypot.

1.3.5 Calibrating the Thermostat

Fryers with thermostat access doors:

1. Fill the frypot to the lower OIL-LEVEL line with cooking oil. If using solid shortening, pack it tightly into the frypot before starting the calibration procedure.

2. Light the pilot. (See Chapter 3 of the Installation and Operation manual for detailed lighting instructions.)

3. Insert a thermometer or pyrometer into the frypot, about 1-inch from the thermostat.

4. Open the thermostat access door and set the thermostat on the fryer to 325°F (162°C).

5. When oil reaches 325°F (162°C), allow the burners to cycle on and off three times.

6. Take a temperature reading when the burners go off for the third time.

7. Loosen the setscrews in the thermostat knob and turn the knob to the temperature established by the thermometer/pyrometer reading.

8. Allow the burners to cycle on and off three more times and recheck the thermometer/pyrometer reading against the thermostat setting. Temperature readings should be within 5°F (2.8°C) of setpoint.

Fryers with thermostat control panels:

NOTE: Remove the thermostat knob from its shaft to allow the control panel to hinge downward. Follow the instructions in Section 1.4.2 to remove the knob and control panel.

1. Fill the frypot to the lower OIL-LEVEL line with cooking oil. If using solid shortening, pre-melt it before starting the calibration procedure.

2. Ensure the fryer power switch is in the OFF position, and light the pilot. (Refer to Chapter 3 of the Installation and Operation manual for detailed lighting instructions.)

3. Insert a thermometer or pyrometer into the frypot so that it touches the thermostat guard.

4. Loosen the setscrew and stop screw securing the thermostat shaft extension to the flexible shaft. Remove the extension to expose the slot in the end of the flexible shaft.

5. Place the fryer power switch in the ON position.

   NOTE: If the burner does not light at this time, it does not mean the thermostat is defective.

   Use a small flat-head screwdriver to slowly turn the flexible shaft counterclockwise until the burner lights.

⚠ CAUTION
The thermostat flexible shaft must not be rotated while installing the thermostat shaft extension!

Do not rotate the flexible shaft more than two turns in either direction. Doing so will cause damage to the thermostat.

6. When the oil temperature reaches 325°F (162°C), slowly turn the flexible shaft clockwise until the burner turns off. Then, allow the fryer to sit for a few minutes.

7. Repeat Steps 5 and 6 at least three times to ensure that the setting is accurate. The thermostat control is considered properly calibrated if the burner lights when the cooking oil cools to 325°F (162°C). *Do not take the reading when the burner shuts off after raising the temperature.*

8. Once the thermostat is calibrated, allow the burner to cycle on and off at least three times to ensure that it lights at the correct temperature.

9. After the calibration is complete, place the fryer power switch in the OFF position and disconnect the fryer from the electrical supply.

10. Carefully replace the thermostat shaft extension so that the stop screw points straight up. Without rotating the flexible shaft, tighten the stop screw, locking nut, and setscrew.

11. Close the fryer control panel and replace the screws and bezel.

12. Reinstall the thermostat knob. Align its pointer with the 325°F (162°C) index mark on the temperature dial.

13. Reconnect the fryer to the electrical supply.

1.3.6 Testing the Temperature Probe

1. While it is still in the frypot, inspect the probe body for damage. Inspect the leads for fraying, burning, breaks, or kinks. If the probe is bent, dented, or cracked, or if the leads are damaged, replace the probe.

2. Determine the temperature of the cooking oil using a thermometer or pyrometer placed at the tip of the probe.

3. Disconnect the 15-pin wiring harness from the interface board. Measure the probe resistance using J2 pins 13 and 14.

4. Resistance should approximately equal the given probe resistance for the corresponding temperature on the chart in Section 1.6, Page 1-23. If not, the probe has failed and must be replaced. Probes cannot be calibrated.

   NOTE: A defective probe will cause inaccurate temperature measurements. If the temperature, as measured by the probe, varies by more than 5°F± (2.8°C±) from the thermometer or pyrometer reading, the probe should be replaced. **Temperature probes cannot be calibrated.**

1.4 Replacing Fryer Components

1.4.1 Replacing a Controller or Computer

1. Disconnect the fryer from the electrical power supply.

2. Slide the metal bezel up to disengage the lower tabs. Then, slide the bezel down to disengage the upper tabs.

3. Remove the two screws holding the controller to the control panel frame.

4. Hinge the controller down to access the 15-pin wiring harness on the back and unplug it.

5. Lift the controller up and out of the hinged tab slots.

6. Use a $^{5}/_{16}$-inch nut driver (P/N 802-0352) to remove the nut and green grounding wire from the back of the controller.

7. If replacing the 15-pin wiring harness, do so now. Plug the new 15-pin wiring harness into the interface board with the metal ring on the controller-end of the connector.

8. Connect the 15-pin wiring harness and the green ground wire to the new controller. When the connector on the harness is completely engaged, the clips on either side will snap into place.

9. Re-hinge the controller by inserting the tabs on the bottom into the slots on the control frame panel.

10. Move it into the closed position against the control panel frame and replace the screws in the top corners.

11. Insert the top tabs on the bezel into the slots on the underside of the top cap. Slide the bezel down to engage the lower tabs in the lower slots.

1.4.2 Replacing the Operating Thermostat in Units with Thermostat Control Panels

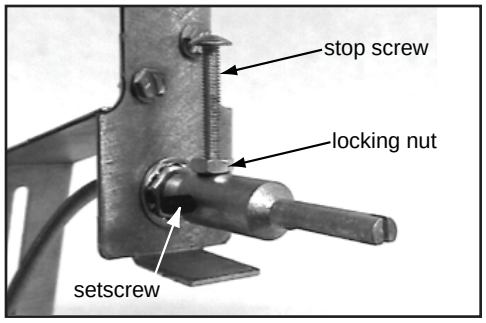
1. Disconnect the fryer from the electrical power supply. Turn off the gas and disconnect the fryer.
2. Drain the frypot.
3. Loosen the setscrew securing the thermostat knob and remove the knob. Remove the screws from the upper left and right corners of the control panel. The control panel hinges at the bottom and will swing open from the top.
4. Disconnect the 9-pin wiring harness and remove the control panel from the fryer by disengaging its tabs from the hinge slots in the mounting frame.
5. Loosen the setscrews securing the flexible shaft to the thermostat shaft. Slip the flexible shaft off the thermostat shaft.
6. Remove the flexible shaft guide by removing the two sheet metal screws securing it to the upper frame.
7. Disconnect the thermostat leads from pin 14 in the 20-pin terminal block and from the gas valve terminal.

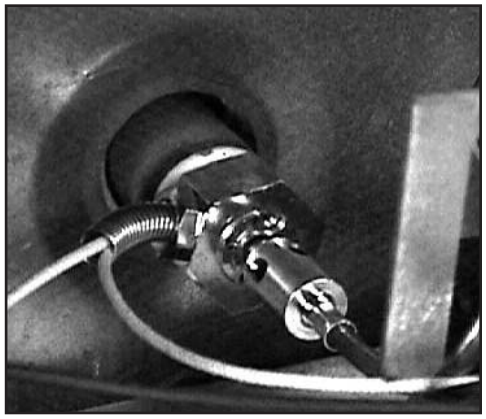
   NOTE: If the fryer has a melt cycle, the thermostat leads connect to the PC board rather than to the terminal block and gas valve. Disconnect the leads from the PC board if this is the case.
8. Unscrew the thermostat from the frypot and remove it.
9. Apply Loctite™ PST56765 thread sealant or equivalent to the threads of the replacement thermostat.
10. Reverse Steps 1-8 to install the replacement thermostat.

⚠ CAUTION

The thermostat flexible shaft must not be rotated while installing the thermostat shaft extension!

Do not rotate the flexible shaft more than two turns in either direction. Doing so will cause damage to the thermostat.





Loosen these setscrews and slip the flexible shaft off of the thermostat shaft.

1.4.3 Replacing the Operating Thermostat in Units with Thermostat Access Doors

1. Disconnect the fryer from the electrical power supply. Turn off the gas and disconnect the fryer.
2. Drain the frypot.
3. Use an allen wrench to loosen the setscrew at the side of the thermostat knob. Remove the knob.
4. Remove the two setscrews on both sides of the thermostat shaft and remove the dial plate.
5. Disconnect the thermostat wires from the gas valve.
6. Use a slotted socket to unscrew the thermostat from the frypot.
7. Apply Loctite™ PST56765 thread sealant or equivalent to the threads of the replacement thermostat.
8. Reverse Steps 1-7 to install the replacement thermostat.

1.4.4 Replacing the Temperature Probe

> **⚠ CAUTION**
> **Drain the frypot before proceeding.**

1. Disconnect the fryer from the electrical supply.
2. Drain the frypot.
3. Remove the controller or computer according to the instructions in Section 1.4.1.
4. Unplug the 12-pin wiring harness from the front of the interface board.
5. Use a pin-pusher to remove the temperature probe wires (pins 1 and 2) from the 12-pin wiring harness
6. Unscrew the temperature probe from the frypot and remove.
7. Apply Loctite™ PST56765 thread sealant or equivalent to threads of the replacement probe.
8. Screw the new probe into the frypot.
9. Reverse Steps 1-5 to reassemble.
10. Check the probe according to the instructions in Section 1.3.6.

1.4.5 Replacing the High-Limit Thermostat in Fryers with Thermostat Controls

> **⚠ CAUTION**
> **Drain the frypot before proceeding.**

1. Disconnect the fryer from the electrical supply.
2. Drain the frypot.
3. Remove the thermostat knob and/or control panel as instructed in Section 1.4.2 or 1.4.3.
4. Disconnect the high-limit thermostat leads from the gas valve pilot coil.
5. Unscrew the high-limit thermostat from the fryer and remove.
6. Apply Loctite™ PST56765 thread sealant or equivalent to the threads of the replacement high-limit thermostat.
7. Reverse Steps 1-5 to the install replacement high-limit.

1.4.6 Replacing the High-Limit Thermostat in Fryers with Other Controls

> **⚠ CAUTION**
> **Drain the frypot before proceeding.**

1. Disconnect the fryer from the electrical supply.
2. Drain the frypot.
3. Remove the bezel and controller as instructed in Section 1.4.1, Steps 2 and 3.
4. Unplug the 15-pin wiring harness and grounding wire from the controller.
5. Remove the high-limit thermostat wires from the gas valve pilot coil.

6. Unscrew the high-limit thermostat from the fryer and remove it.

7. Attach the appropriate terminals (instructions furnished in the replacement kit) to the thermostat leads.

8. Apply Loctite™ PST56765 thread sealant or equivalent to the threads of the replacement high-limit thermostat.

9. Reverse Steps 1-6 to install the replacement high-limit.

1.4.7 Replacing the Heat Mode Indicator Light in Fryers with Thermostat Controls

1. Disconnect the fryer from the electrical power supply.

2. Remove the thermostat knob and control panel as instructed in Section 1.4.2 or 1.4.3, as appropriate.

3. Carefully press the light out from the back of the control panel.

4. Disconnect one wire at a time and reconnect it to the replacement light (before disconnecting the next wire). Continue until all wires are transferred.

5. Carefully press the light back into the control panel.

6. Reinstall the thermostat knob and control panel by reversing Step 2.

7. Reconnect the fryer to the electrical power supply.

1.4.8 Replacing the Power or Melt Cycle Switch in Fryers with Thermostat Controls

1. Disconnect the fryer from the electrical power supply.

2. Remove the thermostat knob and control panel as instructed in Section 1.4.2.

3. Using a flat-head screwdriver, disconnect the chrome bezel from the tabs on the switch and press the switch out from the front.

4. Carefully press the new switch into the chrome bezel, making sure the tabs on the switch engage the slots in the bezel.

5. Disconnect one wire at a time and reconnect it to the replacement switch (before disconnecting the next wire). Continue until all wires are transferred.

6. Reinstall the thermostat knob and control panel by reversing Step 2.

7. Reconnect the fryer to the electrical power supply.

1.4.9 Replacing Burner Ceramic Targets

1. Disconnect the fryer from the electrical power supply. Turn off the gas and disconnect the fryer.

2. Drain the frypot or remove the handle from the drain valve.

3. Remove the round drain sections as necessary to expose the burners and heat shield.

⚠ WARNING
Drain the frypot or remove the handle from the drain valve before proceeding further.

4. Disconnect the wires from the gas valve terminal block, marking each wire to facilitate reconnection.

5. Remove the high-limit thermostat wires from the gas valve pilot coil.

6. Disconnect the pipe union collar located on the bottom of the gas valve.

7. Remove the burner heat shield hanger screws at the front of the burner and remove the heat shield.

   In units with built-in filtration, there may be a second heat shield located under the burner manifold. Remove the screws holding it in place and remove it.

8. Remove the filter pan by sliding it out of the unit and lifting it up and out of the roller track.

9. Remove the burner hanger screws and lower the front of the main burner. Pull it forward to clear the rear burner hanger and lower the burner to the floor.

10. Raise the front of the fryer enough to slide the burner from under the fryer cabinet.

11. To replace only the ceramic targets, straighten the target locking tabs with a pair of needle nose pliers or a screwdriver and slide the target up and off the bracket. Slide the replacement target onto the bracket and bend the locking tabs down.

CAUTION
Avoid cross-threading and stripping ⚠ when reinstalling the brass orifices.

   To replace the entire target assembly, use a ½-inch (13mm) box end wrench to remove the two brass orifices that hold the assembly to the burner manifold. Position the new assembly and replace the orifices.

12. Reverse Steps 1-9 to reinstall the burner assembly. Compare spacing and alignment of targets with the parameters in Section 1.3.4.

1.4.10 Replacing the Gas Valve

1. Disconnect the fryer from the electrical power supply. Turn off the gas and disconnect the fryer.

2. Drain the frypot or remove the handle from the drain valve.

⚠ WARNING
Drain the frypot or remove the handle from the drain valve before proceeding further.

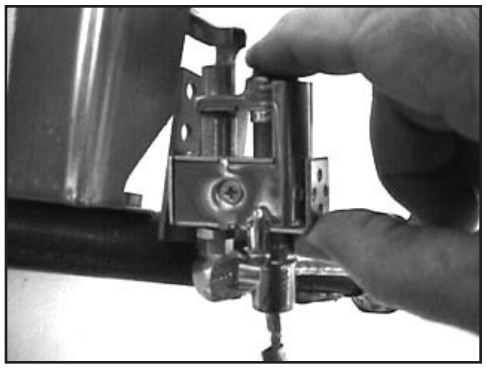
3. Disconnect the wires from the gas valve terminal block, marking each wire to facilitate reconnection.

4. Remove the high-limit thermostat wire from the gas valve pilot coil.
5. Disconnect the pilot gas line fitting from the gas valve.
6. Disconnect both pipe union collars from the gas valve and remove the valve.
7. Remove the pipefittings from the old gas valve and install them on the replacement valve. Use Loctite™ PST56765 or equivalent pipe thread sealant on the threads.
8. Reverse Steps 1-6 to install the replacement gas valve.

1.4.11 Replacing the Pilot Assembly or Thermopile

⚠ WARNING
Drain the frypot or remove the handle from the drain valve before proceeding further.

1. Remove the burner assembly in accordance with Steps 1-10 in Section 1.4.9.
2. To replace only the thermopile:
   a. Bend the clip at the bottom of the pilot assembly and press the thermopile out of the pilot assembly from the top.
   b. Disconnect the thermopile fitting from the gas valve pilot coil.
   c. Reverse Steps a and b to install the replacement thermopile.


Bend the clip to release the thermopile.

3. To replace the complete pilot assembly:
   a. Disconnect the pilot tubing from the bottom of the pilot assembly.
   b. Remove the screw from the pilot mounting bracket to release the pilot assembly.
   c. Disconnect the thermopile fitting from the gas valve pilot coil.
   d. Reverse Steps a-c to install the replacement assembly.
4. Reinstall the burner assembly by reversing Steps 1-8 of Section 1.4.9.

1.4.12 Replacing the Frypot

1. Drain the frypot.
2. Disconnect the fryer from the electrical power supply. Turn off the gas supply and disconnect the fryer.
3. Remove all accessories (i.e., frypot covers, basket lift arms, etc.) from the fryer.
4. If the fryer is equipped with a thermostat control, remove the thermostat knob and control panel according to Steps 3-8 in Section 1.4.3.

   NOTE: If the fryer is configured with a melt cycle, the thermostat leads will be connected to the PC board rather than to the terminal block and gas valve. Disconnect the leads from the PC board if this is the case.

5. If the fryer is not equipped with a thermostat control, remove the controller according to Steps 2-6 in Section 1.4.1.

6. Disconnect the 12-pin plug from the interface board. Use a pin-pusher to remove the temperature probe wires (pins 1 and 2) and the high-limit thermostat leads (pins 6 and 8) from the plug. Leave all other wires connected.

7. Remove the control panel frame by removing the screws in the upper left and right corners that secure the control panel to the topcap. Remove the screws in the top and bottom holes of each brace of the control panel that secure it to the fryer. Pull the control panel straight out of the fryer frame. It may require a rubber mallet to loosen it.

8. Disconnect the wires from the components in the component shield and mark to facilitate reconnection.

9. Disconnect the wires from the gas valve terminal block and mark each to facilitate reconnection.

10. Remove the cover from the drain safety switch, disconnect the wires from the switch, and pull them out of the switch box.

11. Pull up and forward on the component shield to clear the rear mounting stud on the front of the frypot and remove it from the fryer by rotating its right side up and to the left.

12. Disconnect the pipe union on the bottom of the gas valve.

13. On units with filtration, disconnect the section of drain connected to the drain valve of the frypot to be removed.

14. Take off the topcap by removing the pairs of screws from each tab in the upper corners. Pull up to slide it off the fryer. It may require a rubber mallet to loosen it.

15. Remove the frypot hold-down bracket, which attaches the front of the frypot to the frame of the fryer. It is held in place by three screws: two securing it to the frame and one securing it to the frypot.

16. Remove the flue cap:

    a. Remove all of the screws attaching the back panels to the fryer and remove the panels.

    b. Remove the screws in the bottom left and right corners of the flue cap.

    c. Slide the flue cap up to remove it.

⚠ CAUTION
Clean all threads and apply Loctite™ PST56765 thread sealant or equivalent when installing the drain valve, high-limit, and thermostat or temperature probe on the replacement frypot.

17. Remove the oil return line from the front of the frypot to be removed.

18. Lift the complete frypot assembly (frypot, burner, gas valve, and flue) from the fryer cabinet.

19. Transfer the burner heat shield and burner to the replacement frypot.

20. Remove the drain valve, thermostat or temperature probe, and high-limit thermostat and install them on the replacement frypot.

21. In units with multiple frypots, add a bead of silicon along the joint between the frypots to ensure a seal. Then, insert the top connecting strip.

22. Reverse Steps 1-25 to reassemble the fryer.

1.4.13 Replacing a Pump/Motor

1. Disconnect the unit from the electrical power supply.
2. Remove the filter pan from the unit and drain the frypots into a Shortening Disposal Unit (SDU) or other appropriate metal container.

⚠ DANGER

DO NOT attempt to drain more than one full frypot or two split frypots into the SDU at one time.

3. Position a container beneath the oil return fitting at the front of the cabinet. Disconnect the flexible oil line from the fitting, allowing any residual oil to drain into the container.
4. At the rear of the fryer, unplug the left connector (as viewed from the rear of the fryer) from the transformer box. Using a pin pusher, push the pump solenoid valve wires from Pins 7 and 9.
5. Remove the four nuts and bolts attaching the motor mount to the rear motor mount support.
6. At the front of the fryer, remove the cover plate from the front of the motor and disconnect the motor wires.
7. Place a 1-foot (30.5-cm) length of wood (or similar support) beneath the motor mount near the front of the unit and remove the two remaining nuts and bolts attaching the motor mount to the front cabinet cross-brace.
8. Carefully remove the support and lower the motor mount to the floor, allowing the rear of the mount to slide forward and off the rear motor mount support.
9. Disconnect the Power Shower flexline (if applicable) or the oil return flexline from the pump. The motor and pump assembly can now be pulled from beneath the fryer and the failed component can be removed and replaced.
10. Position the new/repaired motor and pump assembly beneath the fryer and reconnect the Power Shower flexline (if applicable) or the oil return flexline to the pump. Lift the rear of the motor mount up and onto the rear motor mount support.
11. Lift the front of the motor mount up and support it with a 1-foot (30.5-cm) piece of wood or a similar support. Install but do not tighten the two nuts and bolts that attach the motor mount to the front cabinet cross-brace.
12. Install and tighten the four nuts and bolts that secure the motor mount to the rear motor mount support. Reconnect the solenoid valve wires to Pins 7 and 9 of the 9-pin connector (polarity does not matter) and reconnect the plug.
13. At the front of the fryer, tighten the two nuts and bolts at the front of the motor mount. Reconnect the motor power wires and reinstall the wiring cover plate.
14. Reconnect the oil return flexline and reinstall the filter pan.
15. Reconnect the unit to the electrical power supply, fill the frypots with oil, and check for proper operation.

1.5 Troubleshooting and Problem Isolation

Because it is not feasible to include every issue that might occur, this section is intended to provide technicians with a general knowledge of the broad problem categories associated with this equipment and the probable causes of each. With this knowledge, the technician should be able to isolate and

correct any problem encountered.

1.5.1 Typical Problems

You are likely to encounter problems in these broad categories:

1. Pilot Failure
2. Ignition Failure
3. Improper Burner Function
4. Improper Temperature Control
5. Gas Valve Malfunction
6. Computer Malfunction
7. Filtration Malfunction
8. Leakage
9. Basket Lift Malfunction

Read the following sections to learn more about each category. A series of troubleshooting guides is also included at the end of the chapter to assist in identifying some of the more common problems. In addition, Section 1.5.2 will guide technicians through interpretation of digital controller lights, helpful in diagnosing problems.

Pilot Failure

There are two types of pilot failure: no pilot flame and unreliable pilot flame.

No pilot flame:

- Insufficient gas supply
- Clogged pilot orifice
- Air in gas lines (usually in new installations).

Unreliable pilot flame:

- Open or grounded high limit
- Loose or corroded wire connections
- Low or no voltage out of thermopile
- Bad gas valve.

Ignition Failure

Ignition failure occurs when the gas valve no longer receives power, the gas supply stops, or the pilot flame goes out. Solid-state controllers indicate ignition failure by illuminating the heat light and trouble light simultaneously. Computers and digital timers will read HELP to indicate ignition failure. There are three primary areas of focus in diagnosing and correcting ignition failure:

1. The gas and electrical power supplies
2. The electronic circuits
3. The gas valve.

The Gas and Electrical Power Supplies

The main indicators that the gas or electrical power supply is the cause of ignition failure are as follows: an entire battery of fryers fails to light, and/or there are no indicator lights illuminated on the fryer experiencing ignition failure. Verify that the quick disconnect hose is properly connected, the fryer is plugged in, the main gas supply valve is open, and the circuit breaker for the fryer electrical supply is not tripped.

The Electronic Circuits

If the fryer is receiving gas and electrical power, the next most likely cause of ignition failure is a problem in the 24 VAC circuit of the pilot system. If the fryer is equipped with a drain valve for filtration purposes, check the drain valve to verify that it is fully closed. A microswitch attached to the valve must be closed for power to reach the gas valve. Often, although the valve handle appears to be in the closed position, the microswitch is still open. If the valve is fully closed, or the fryer is not equipped with a filtration system, refer to *Troubleshooting the 24 VAC Circuit* in Section 1.7.1 of this manual.

The Gas Valve

If the problem is not in the 24 VAC circuit of the pilot system, it is most likely in the gas valve. However, before replacing the gas valve, refer to *Troubleshooting the Gas Valve* in Section 1.7.2 of this manual.

Improper Burner Function

In these types of instances, the burner ignites but exhibits abnormal characteristics, such as *popping*, incomplete lighting of the burner, fluctuating flame intensity, and flames "rolling" out of the fryer.

Popping indicates delayed ignition. In most cases, the main gas valve is opening, but the burner is not immediately lighting. When ignition does take place, excess gas bursts into flame suddenly, rather than smoothly igniting.

The primary causes of popping are:

1. Incorrect or fluctuating gas pressure
2. Misdirected or weak pilot flame
3. Clogged burner orifices
4. Inadequate make-up air
5. Missing or misaligned burner deflector targets
6. Clogged vent tube (causing incorrect gas pressure).

Incorrect or Fluctuating Gas Pressure

If popping occurs only during peak hours, the problem may be incorrect or fluctuating gas pressure. Verify that the incoming gas pressure (to the gas valve) is in accordance with the appropriate CE or non-CE standard found in the table on Page 1-4 and the pressure remains constant throughout all hours of usage. Refer to *Checking the Burner Manifold Pressure* in Section 1.3.2 for instructions on checking the pressure of gas supplied to the burner.

Misdirected or Weak Pilot Flame

If popping is consistent during all hours of operation, check position of the pilot above the burner orifice and verify that the pilot pressure is correct. A 1- to 1 ½-inch (25 to 38 mm) flame indicates correct pilot pressure. Refer to Section 1.3.3 for information on pilot flame adjustment.

Clogged Burner Orifices

Clogged burner orifices, especially those near the pilot, are also likely causes of delayed ignition. Lack of flame, flames that are orange in color, and flames that shoot out at an angle from the rest are indications of clogged burner orifices. If **only one side of the burner is lighting**, the rear deflector target may be misaligned or missing completely. Improper burner pressure may also cause this. If there are **gaps in burner firing**, check for clogged burner orifices.

Inadequate Make-up Air

Another cause of popping is an insufficient air supply or drafts that are blowing the pilot flame away from the burner. Check for *negative pressure* conditions in the kitchen area. If air is flowing into the kitchen area, this indicates that more air is entering the kitchen than is leaving it. In a negative pressure environment, the burners may not be receiving an adequate amount of air to maintain a strong pilot flame.

Other Causes of Popping

Other causes of popping are more ambiguous and may have two or more possible causes to consider.

If the fryer's gas and air supplies are okay, it is likely that the cause of the popping is one of the electrical components. Examine the controller for signs of melting, distortion, and possibly discoloration due to excessive heat buildup in the fryer (usually indicating improper flue performance). Automatically suspect a discolored or distorted controller and replace it. However, it is important to diagnose and correct the condition causing excessive heat in the fryer or the problem is likely to recur.

Fluctuating flame intensity is normally caused by improper or fluctuating gas pressure or the result of variations in the kitchen atmosphere. Verify incoming gas pressure in the same way as for popping, discussed in the preceding paragraphs. Air condition and ventilation units (such as hoods) starting and stopping throughout the day usually cause variations in the kitchen atmosphere. As they start and stop, the pressure in the kitchen may change from positive or neutral to negative, or vice versa. They may also cause changes in airflow patterns that may affect flame intensity.

Flames "rolling" out of the fryer are usually an indication of negative pressure in the kitchen. The negative air pressure is sucking air out of the fryer enclosure and the flames are following the air. If negative pressure is not the cause, check for high burner manifold gas pressure in accordance with the procedures in Section 1.3.2. An obstructed flue, which prevents the fryer from properly exhausting, may also be the cause.

An **unusually noisy burner**, especially when **flames are visible above the flue opening**, may indicate that the burner gas pressure is too high or that the gas valve vent tube is blocked. If the gas pressure is correct and the vent tube is unobstructed, the gas valve regulator is probably defective.

Occasionally, a burner may appear to be operating correctly, but it shows a **slow recovery rate** (discussed on Page 1-18). The primary causes of this are low burner manifold pressure and misaligned or missing deflector targets. In some cases, the cause is a gas valve regulator that is out of adjustment. Refer to Section 1.3.2 for instructions on checking the burner manifold pressure and Section 1.3.4 for adjusting deflector target positioning.

Improper Temperature Control

Temperature control—including that for the melt cycle—is a function of several interrelated components, each of which must operate correctly. The principal component is the thermostat (in units equipped with thermostat controls) or the temperature probe (in fryers equipped with other types of controllers). Depending upon the specific configuration of the fryer, it may also include an interface board and controller. Problems with improper temperature control can be categorized into those issues concerning melt cycle malfunctions and those concerning a failure to control at setpoint.

Melt Cycle

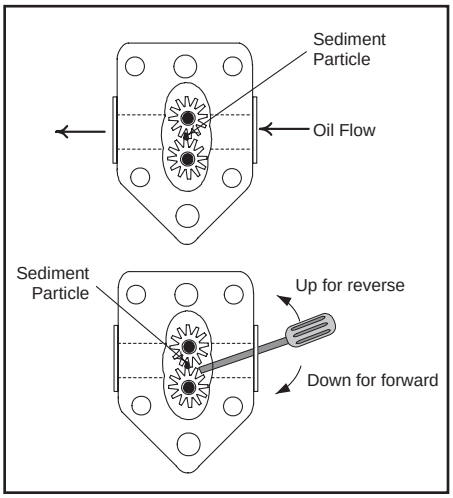
In fryers equipped with thermostat controls, the melt cycle is controlled with a solid state melt cycle board and a melt cycle switch on the control panel. In all cases, replace the defective component.

In fryers equipped with other types of controllers, the problem may originate in the controller, the temperature probe, or a malfunctioning heat relay on the interface board. For problem isolation techniques, refer to the troubleshooting guides, *Troubleshooting the Thermostat* and *Troubleshooting the Temperature Probe*, in Section 1.7, *Troubleshooting*.

Failure to Control at Setpoint

In fryers equipped with thermostat controls, the problem will be in the thermostat. Refer to Section 1.3.5 for instructions on calibrating the thermostat. Possible causes are that

- the thermostat is out of calibration,
- the knob or flexible shaft is loose on the thermostat shaft,
- a thermostat wire is disconnected or broken, or
- the thermostat is defective.



Removing debris or shortening from a seized pump.

Refer to Section 1.3.5 for instructions on calibrating the thermostat. In fryers equipped with other types of controls, the problem may originate in the temperature probe or probe circuit, the interface board, or the controller. Refer to *Troubleshooting the Temperature Probe*, Section 1.7.4., for problem isolation techniques.

Gas Valve Malfunction

Occasionally, a gas valve may malfunction. Use Section 1.7.2, *Troubleshooting the Gas Valve*, to determine if the valve has failed.

Computer Malfunction

Before diagnosing problems related to a computer controller, it is important to understand the use and significance of sensitivity and recovery.

Sensitivity and Recovery

Sensitivity—or "stretch time"—is a programmable feature, patented by Frymaster, which increases or decreases the cook time countdown based on variation in the oil temperature from the setpoint. The

sensitivity for each product button has ten settings, 0-9. Setting sensitivity to "0" will disable the feature completely, while a setting of "9" will provide the highest sensitivity or most change. The correct sensitivity for any product is based on the type of product, its density, the setpoint temperature, and the customer's own requirements. A generic sensitivity chart is located on Page 1-5 of the *Frymaster Fryer Controllers* manual (P/N 819-5916).

Recovery—or "rate of rise"— is a method of measuring a fryer's performance. It is the time required for the fryer to increase the oil temperature from 275°F to 325°F (135°C to 163°C). This range is the standard since ambient kitchen temperatures can affect the test if lower ranges are used. The Computer Magic computer controller performs the recovery test each day as the fryer heats-up. An operator can view the results of the test any time the fryer is above 325°F (163°C) by pressing the ✔ button and entering the code 1652. The test results display in the computer's LED panel in minutes and seconds. The acceptable recovery time is 2:30 or less. Extended recovery is a sign that the fryer is not being regularly maintained or it is in need of servicing. The recovery time lengthens as fryer health declines. This is a useful tool for gauging the condition of the fryer and should be checked regularly.

Common Computer Complaints

Most problems with Computer Magic controllers stem from programming issues. There are four common complaints.

1. Fryer constantly displays HI.

   Cause: Incorrect, low, or missing setpoint.

   Fix: Press ✔ 1650, enter the correct setpoint using the keypad, then press 🌡 to lock-in the new setpoint.

2. Fryer constantly displays temperature.

   Cause: The computer has been programmed to constantly display the temperature.

   Fix: Press ✔ 165L.

3. Fryer displays temperature in Celsius.

   Cause: The computer has been programmed to display in Celsius rather than Fahrenheit.

   Fix: Press ✔ 1658.

4. Computer times down too slowly or too quickly.

   Cause: The computer is compensating for oil temperature via the sensitivity setting.

   Fix: Reprogram the sensitivity setting for each product by following the programming instructions in the Installation and Operation manual or the *Frymaster Fryers Controllers* manual (P/N 819-5916).

Filtration Malfunction

The majority of filtration malfunctions arise from operator error. **One of the most common errors is placing the filter paper on the bottom of the filter pan rather than over the filter screen.**

Inspect the filter paper to ensure that it is correctly sized and placed. Incorrectly sized or installed filter paper will allow particles and sediment to pass through the filter pan and into the pump. When sediment enters the pump, the gears can bind and cause the motor to overheat. If the motor overheats, the thermal overload will trip to protect the motor from further damage. Reset the motor by pressing the red reset button the end of the motor nearest the operator. **Sediment cannot enter the pump when the correct filter paper is used properly.**

While you are checking the filter paper, verify that the O-rings on the filter pan and connectors are present and in good condition. Missing or worn O-rings will allow the pump to suck air and decrease its efficiency.

A pump seized by debris or hard shortening can usually be freed by manually moving the gears with a screwdriver or other tool.

1. Disconnect power to the filter system.

2. Remove the input plumbing from the pump.

3. Use a screwdriver to manually turn the gears.

   - Turn the pump gears backward to release a hard particle and remove it.

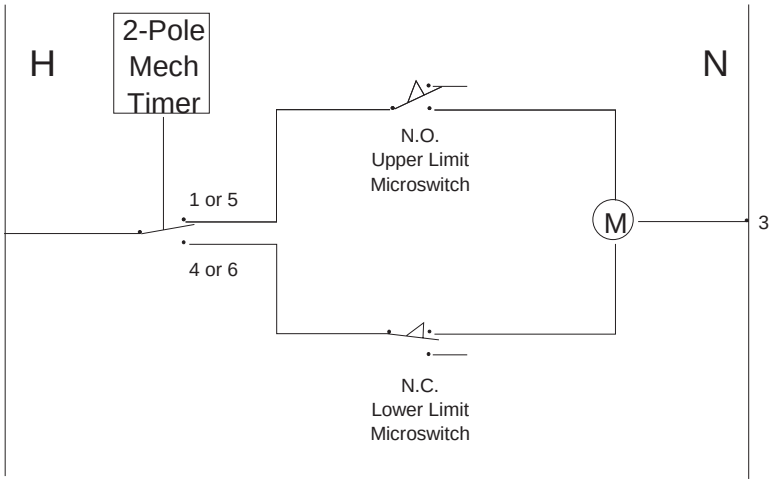
   - Turn the pump gears forward to push softer objects and solid shortening through the pump and allow the gears to move freely.

Incorrectly sized or installed paper will also allow food particles and sediment to pass through and clog the suction tube on the bottom of the filter carriage. Particles large enough to block the suction tube may indicate that the crumb tray is not being used during filtering.

Pan blockage can also occur if shortening remains in the pan and solidifies. The heater strip on the suction tube prevents solidification of residual shortening left in the tube. It will not melt or prevent solidification of shortening in the pan. Remove blockages by forcing the item out with an auger or drain snake. **Compressed air or other pressurized gases should not be used to force out the blockage.**

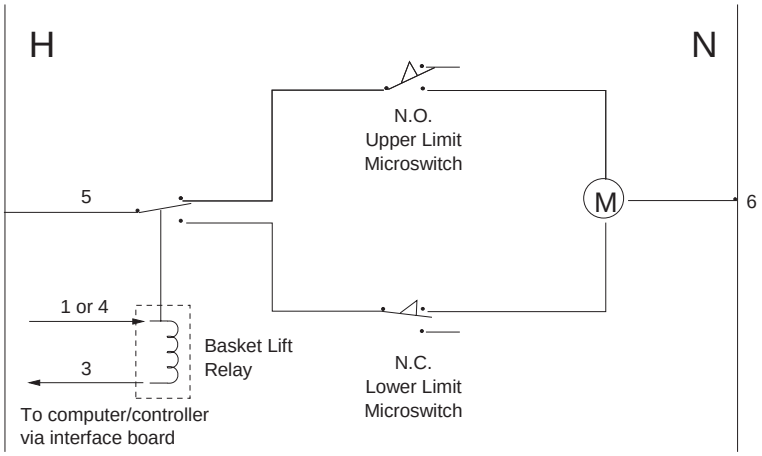
The Power Shower may need service for clogged openings, shortening solidified in the tubes, missing clean-out plugs, and missing or worn O-rings. To correct these problems, clean the unit and replace missing or worn plugs and O-rings.

Manual (Push-Button)
Modular Basket Lift Simplified Schematic



When the timer button is pushed, the lower circuit is activated. The basket lift lowers, closing the normally open upper microswitch. The motor loses power when the basket lift rod moves down and opens the lower, normally closed microswitch. When the timer times-out, the upper circuit is activated. The basket lift rises, closing the lower microswitch. When the rod clears the upper microswitch, it opens and power is again cut to the motor. Pushing the timer button again restarts the cycle.

Computer/Controller
Modular Basket Lift Simplified Schematic



When the product button is pushed on the computer/controller, current flows through a coil in the basket lift relay. The lower circuit is activated and the basket lift lowers, closing the upper, normally open microswitch. The basket lift rod moves down, opening the lower, normally closed microswitch and removing power from the motor. When the computer/controller times-out, the relay coil loses current and the upper circuit is activated. The basket lift rises, closing the lower microswitch. When the rod opens the upper microswitch, power to the motor is lost again. Pushing the product button again restarts the cycle.

Leakage

When a frypot appears to be leaking, suspect the areas where high-limit thermostats, temperature probes, and drain fittings attach to the frypot. When installed or replaced, seal each of these components with Loctite PST56765 sealant or equivalent to prevent leakage.

If oil coats the sides or ends of the frypot, the most likely cause is spillage over the top of the frypot. There may also be oil pooled on the floor below the fryer. **This is not necessarily a sign that the frypot is leaking**.

It is important to check the joints between round drain sections and all of the fittings. If removing a section of drain tube connected to the drain valve for any reason, make sure that the O-rings are in good condition and properly fitted within the drain during reinstallation. Ensure that the clamps are tight and that the nut holding them onto the stud of the tube is not stripped or loose. Also, check that the drain tube runs downward from the drain along its whole length and has no low points where oil may accumulate.

In very rare cases, a leak may develop along one of the welded edges of the frypot. When this type of leak is suspected, thoroughly inspect the frypot. If it is definitely leaking, replace the frypot.

Basket Lift Malfunction

Performance Pro series gas fryers may be optionally equipped with automatic basket lifts to ensure uniform cooking time. The lifts can be controlled manually or through a basket lift timer or Computer Magic computer. Basket lifts will always come in pairs, although each operates independently.

Each basket lift consists of a basket lift arm attached to a toothed rod, a reversible-drive gear motor, and a pair of roller-activated microswitches. The gear motor engages the teeth on the rod and moves it up or down based on the motor's rotation. Microswitches at the upper and lower limits of movement stop the motor when the basket is fully up or down. They also reverse the direction of current flow to reverse the motor direction. When the manually set or programmed cooking time has elapsed, the basket lift receives current and raises the basket out of the oil.

In units configured for manual (push-button) controls, a mechanical or electrical timer controls voltage to the system. Turning a rotary knob sets the cook time, and pressing the button in the middle of the knob activates the motor. When the timer times down, power is supplied to the opposite pole of the motor through the upper microswitch. The motor drives the rod upward until it loses contact with the upper microswitch, cutting power to the motor and stopping the lift.

In units configured for basket lift timers or Computer Magic computers, the process is almost identical. The difference is that the push button mechanical timer is replaced with timing circuitry in the computer or controller. The operator programs the specific cook times (and other settings) into the computer or controller. When the product button is pressed, the timing circuitry activates a coil in the basket lift relay to supply power to the lower microswitch. As with the manually controlled units, the microswitches stop the motor at the lift's upper and lower travel limits and reverse the direction of current flow, reversing the motor's direction.

There are three basket lift problem types. They are

- binds and jams,
- motor and gear wear, and

- electronics failure.

Binds and Jams

Noisy, jerky, or erratic movement of the lifts is usually due to lack of lubrication of the rods and their bushings. Apply a light coat of Lubriplate™ or similar lightweight white grease to the rod and bushings to correct the problem.

Another possible cause of binding is the improper positioning of the motor, which prevents the gear from correctly engaging the teeth in the rod. To correct the problem, loosen the screws that hold the motor in place and move it forward or backward until the rod has just enough slack to be rotated slightly.

Motor and Gear Wear

The most likely problem encountered in this category is erratic motion of the lift due to a worn drive gear. Failure to keep the lift rod and bushings properly lubricated will cause unnecessary wear of the gear. Correct the problem by replacing the worn gear.

If the lift cycles correctly but fails to remain in the “up” position (i.e., goes up, but then slowly settles back down into the frypot), the problem is a failed motor brake. The brake cannot be repaired and the motor must be replaced.

If the motor fails to run when power is reaching it, replace the motor because it has burned-out.

Electronics Failure

An electronics failure may be caused by relays, microswitches, capacitors, resistors, interface boards, wiring, and controls. Troubleshooting electronics is a process of verifying current flow through the individual components up to and including the motor. Using a multimeter set to the 250 VAC range, check the connections on both sides of each component for the presence of 120 VAC. Examine the diagrams on Pages 1-31 and 1-32 to identify components and wiring connection points. (See Page 1-22 for simplified basket lift schematics.)

1.5.2 Interpretation of Analog Controller Lights

Power light ON, heat light cycling, trouble light OFF, and melt light ON:

- If the fryer oil temperature is below 180°F (82°C), the lights indicate that the unit is operating normally.

- If the fryer oil temperature is above 180°F (82°C) and the heat light continues to cycle as if in the melt cycle, this may indicate a defective probe circuit or low incoming 12 VAC to the controller.

Power light ON, heat light ON, trouble light OFF, and melt light OFF:

- If the fryer oil temperature is above 180°F (82°C) and below the setpoint temperature, the lights indicate that the unit is operating normally.

- If the fryer oil temperature is above setpoint and the heat light remains lit, this may indicate a defective probe circuit.

Power light ON, heat light OFF, trouble light ON, and melt light OFF:

- If the fryer oil temperature is below 410°F (210°C), the lights indicate one of the following:

  a. The probe circuit is defective, or

  b. There is a connection problem on pins 2 or 10 on the 15-pin wiring harness.

- If the fryer oil temperature is above 410°F (210°C), the lights indicate a “run-away” heating circuit.

1.6 Probe Resistance Chart

Probe Resistance Chart
For use with 35- and 45-series fryers manufactured with Minco Thermistor probes only.

F	OHMS	C	F	OHMS	C	F	OHMS	C	F	OHMS	C	F	OHMS	C
60	1061	16	130	1206	54	200	1350	93	270	1493	132	340	1634	171
65	1070	18	135	1216	57	205	1361	96	275	1503	135	345	1644	174
70	1080	21	140	1226	60	210	1371	99	280	1514	138	350	1654	177
75	1091	24	145	1237	63	215	1381	102	285	1524	141	355	1664	179
80	1101	27	150	1247	66	220	1391	104	290	1534	143	360	1674	182
85	1112	29	155	1258	68	225	1402	107	295	1544	146	365	1684	185
90	1122	32	160	1268	71	230	1412	110	300	1554	149	370	1694	188
95	1133	35	165	1278	74	235	1422	113	305	1564	152	375	1704	191
100	1143	38	170	1289	77	240	1432	116	310	1574	154	380	1714	193
105	1154	41	175	1299	79	245	1442	118	315	1584	157	385	1724	196
110	1164	43	180	1309	82	250	1453	121	320	1594	160	390	1734	199
115	1174	46	185	1320	85	255	1463	124	325	1604	163	395	1744	202
120	1185	49	190	1330	88	260	1473	127	330	1614	166	400	1754	204
125	1195	52	195	1340	91	265	1483	129	335	1624	168	405	1764	207

1.7 Troubleshooting Guides

The following are only guides. They are provided to assist the technician or service professional in the isolation of failures in components and wiring on the fryer.

1.7.1 Troubleshooting the 24 VAC Circuit

Troubleshooting the 24 VAC Circuit: Analog Controller

Before troubleshooting, verify that the drain valve(s) is fully closed and move the power switch into the ON position.

PROBLEM	PROBABLE CAUSES
24 VAC not present at gas valve or the power switch.	• Failed 24 volt transformer
Continuity across the power switch not equal to **0**.	• Failed power switch
Continuity across the thermostat not equal to **0**.	• Failed thermostat

- If 24 VAC is present at the gas valve, go to *Troubleshooting the Gas Valve*, Section 1.7.2.

Troubleshooting the 24 VAC Circuit: Electronic Ignition (Computer Controller)

Before troubleshooting, verify that the drain valve is fully closed, then turn on the controller.

PROBLEM	PROBABLE CAUSES
No LEDs on the interface board are lit.	• Failed 24 volt transformer • Failed interface board • Failed or open drain safety switch • Failed wiring between components
24 volt LED on the interface board is lit, no others.	• Failed interface board • Failed or open drain safety switch • Failed wiring between components
GV LED on the interface board is lit (with or without other LEDs).	• Failed interface board • Open high-limit thermostat • Failed or open drain safety switch • Failed wiring between interface board and gas valve • Failed gas valve
LED 3 is continually lit, but LED 2 and LED 4 are not lit.	• Failed heat relay • Failed interface board
LEDs 2, 3, and 4 are lit, but 24 VAC is not present at V1S (V1D and V2D on dual-vat units).	• Failed igition module • Failed interface board
LEDs 2, 3, and 4 are lit, and 24 VAC is present at V1S (V1D and V2D on dual-vat units).	• Failed interface board

- If a failed ignition module is suspected, replace the questionable module with one known to be good to isolate the problem.
- If 24 VAC is present on pin 6 on J1, but the pilot will not light, go to *Troubleshooting the Gas Valve*, Section 1.7.2.
- If 24 VAC is present on pin 20 of the 20-pin terminal block, but not at the gas valve, go to *Troubleshooting the Gas Valve*, Section 1.7.2.

Troubleshooting the 24 VAC Circuit: Standing Pilot (Computer Controller)

Before troubleshooting, verify that the drain valve is fully closed, then turn on the controller.

PROBLEM	PROBABLE CAUSES
No LEDs on the interface board are lit.	• Failed 24 volt transformer • Failed interface board • Failed or open drain safety switch • Failed wiring between components
24 volt LED on the interface board is lit, no others.	• Failed interface board • Failed or open drain safety switch • Failed wiring between components
GV LED on the interface board is lit (with or without other LEDs).	• Failed interface board • Open high-limit thermostat • Failed or open drain safety switch • Failed wiring between interface board and gas valve • Failed gas valve
Continuity across drain safety switch(es) not equal to **0**	• Failed or open drain safety switch.
24 VAC is not present at V1S (V1D and V2D on dual-vat units).	• Failed interface board

- If 24 VAC is present all the way through to the high-limit, go to *Troubleshooting the Gas Valve*, Section 1.7.2.

1.7.2 Troubleshooting the Gas Valve

Before troubleshooting, verify that the gas main street valve is open and the fryer gasline cutoff valve is open. Place the gas valve in the ON position.

PROBLEM	PROBABLE CAUSES
Incoming gas pressure is too high or low.	• Problem with gas supply
Pilot won't remain lit, low millivolt output from thermopile.	• Failed thermopile
Pilot won't remain lit, good millivolt output from thermopile.	• Failed gas valve • Failed high-limit

- If 24 VAC is not present at the gas valve, go to *Troubleshooting the 24 VAC Circuit*, Section 1.7.1.

1.7.3 Troubleshooting the Thermostat

Check the calibration of the thermostat before troubleshooting, if possible.

PROBLEM	PROBABLE CAUSES
The burner does not light when the thermostat is set to the maximum setting.	• Failed thermostat • Failed wiring

- If 24 VAC is present at the gas valve, but the burner is not lighting, go to *Troubleshooting the Gas Valve*, Section 1.7.2.

1.7.4 Troubleshooting the Temperature Probe

Follow these guidelines to troubleshoot the temperature probe:

1. While it is still in the frypot, inspect the probe body for damage. Inspect the leads for fraying, burning, breaks, or kinks. If the probe is bent, dented, or cracked, or if the leads are damaged, replace the probe.

2. Determine the temperature of the cooking oil using a thermometer or pyrometer placed at the tip of the probe.

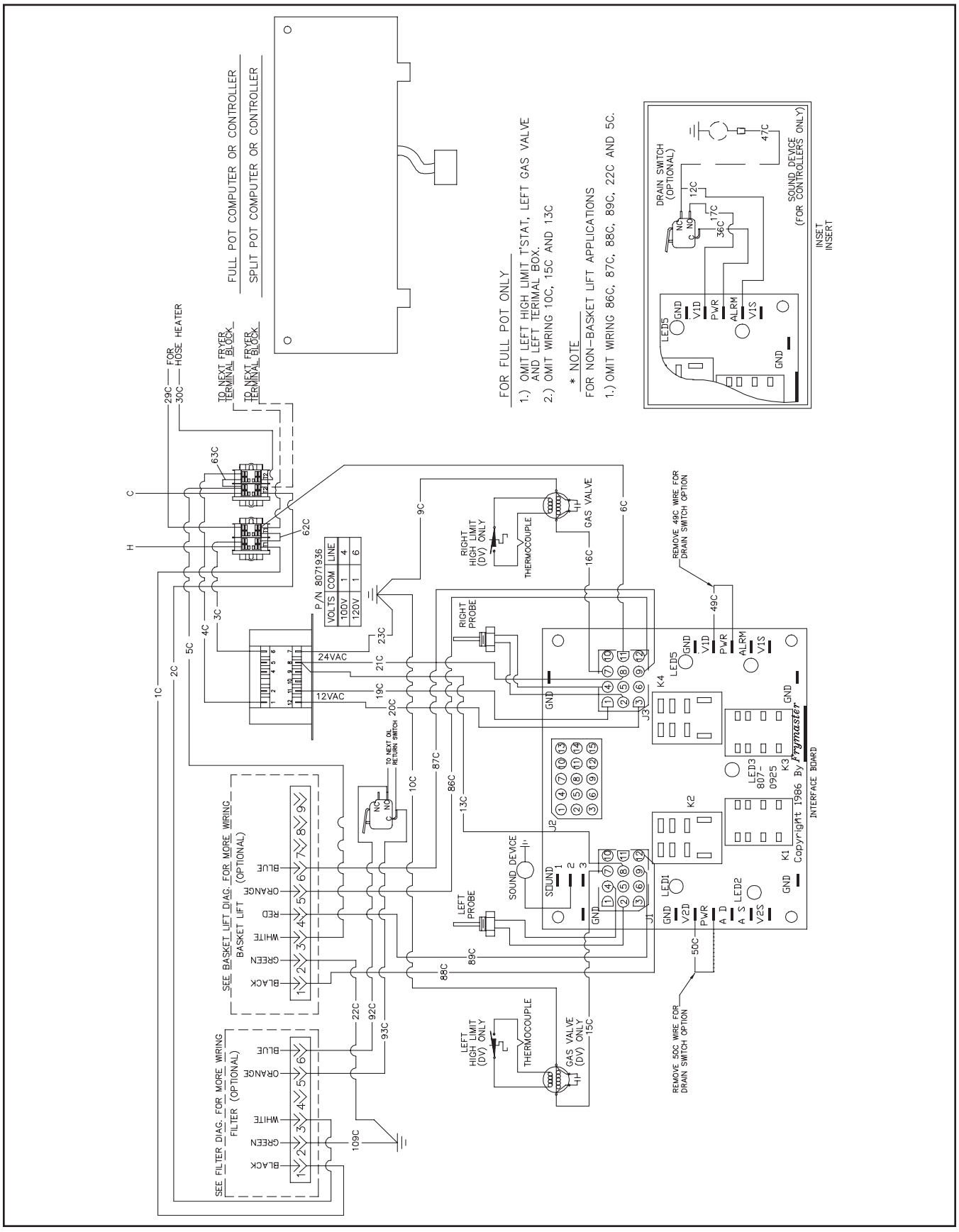
3. Disconnect the 15-pin wiring harness from the interface board. Measure the probe resistance using J2 pins 13 and 14.

4. Resistance should approximately equal the given probe resistance for the corresponding temperature on the chart in Section 1.6, Page 1-23. If not, the probe has failed and must be replaced. Probes cannot be calibrated.

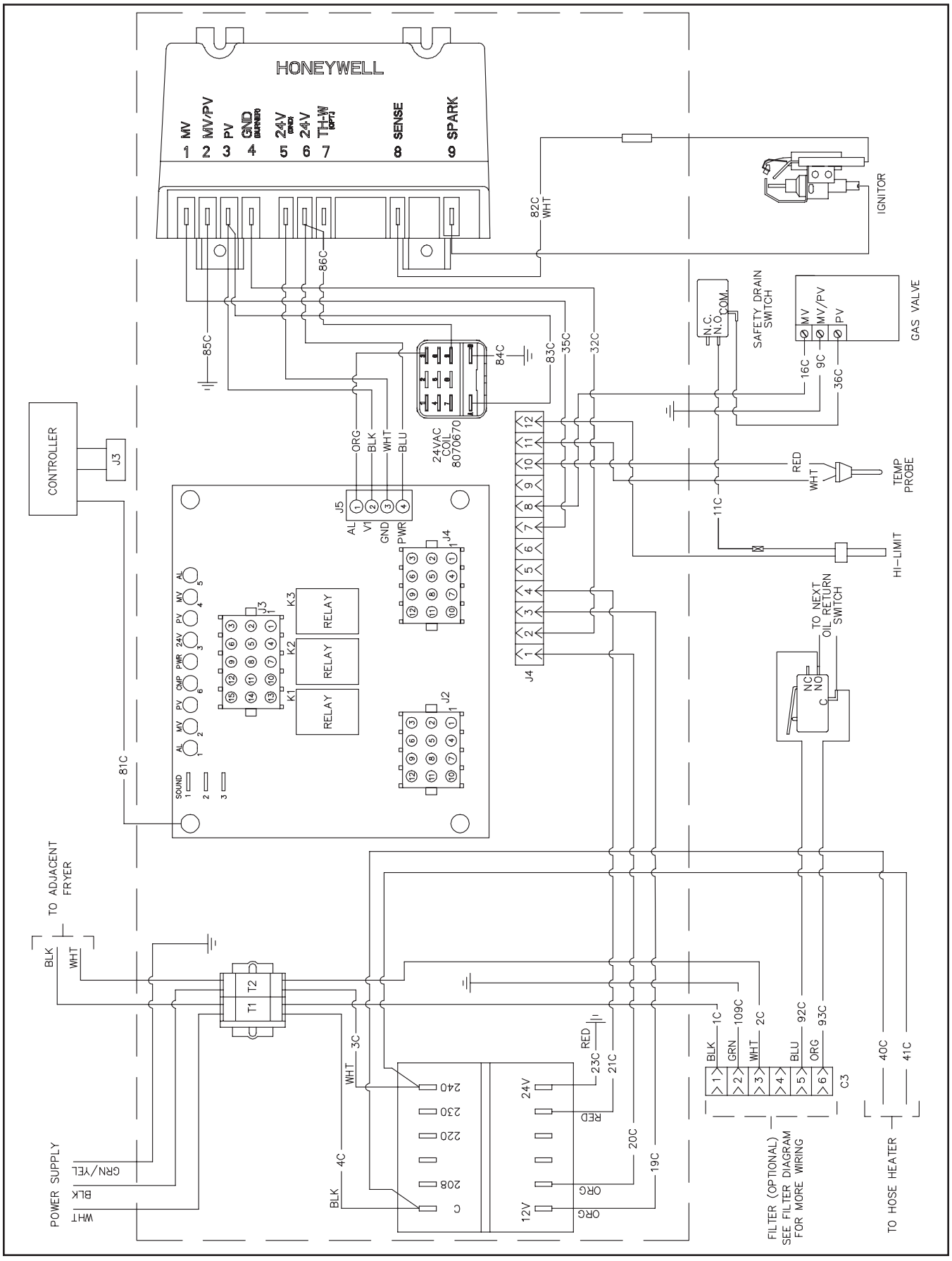
5. If the resistance matches the corresponding temperature on the chart, measure the resistance through J2 pin 13 and ground. Then, through J2 14 and ground. If the resistance of each pin is 5 megaohms or greater, the probe is working correctly. If the resistance is less than 5 megaohms, it has failed and must be replaced.

1.8 Wiring Diagrams

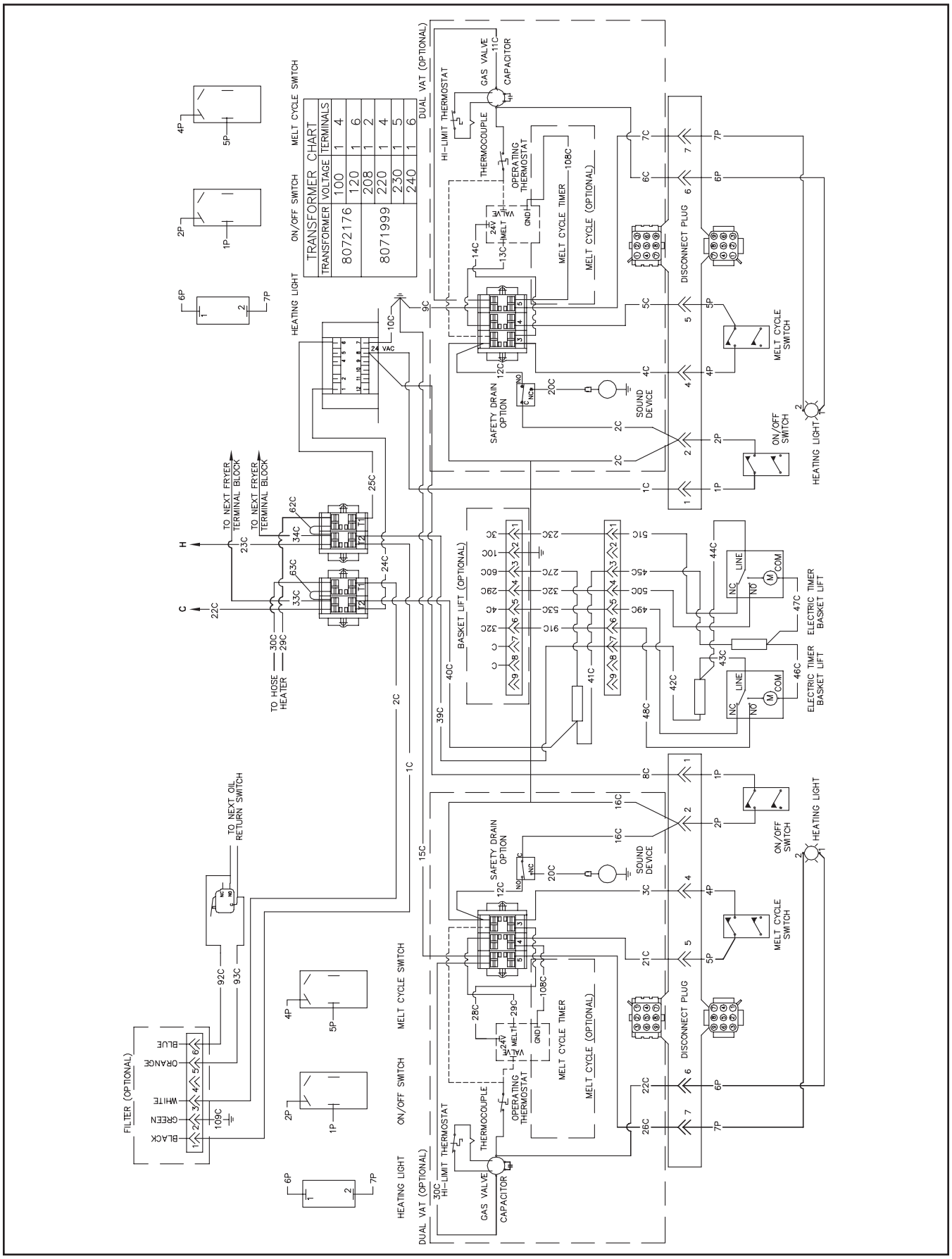
1.8.1 Standing Pilot



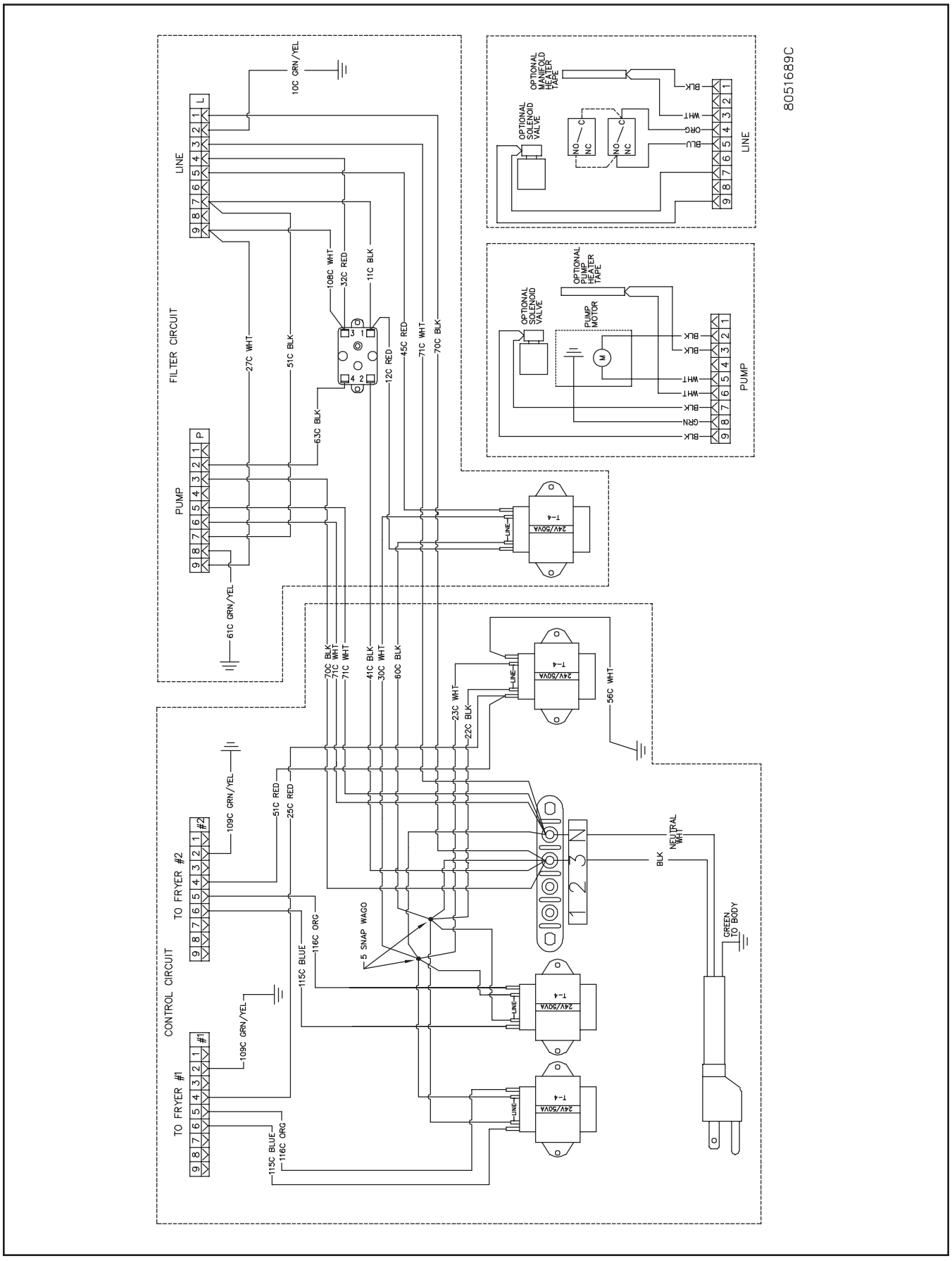
1.8.2 Electronic Ignition



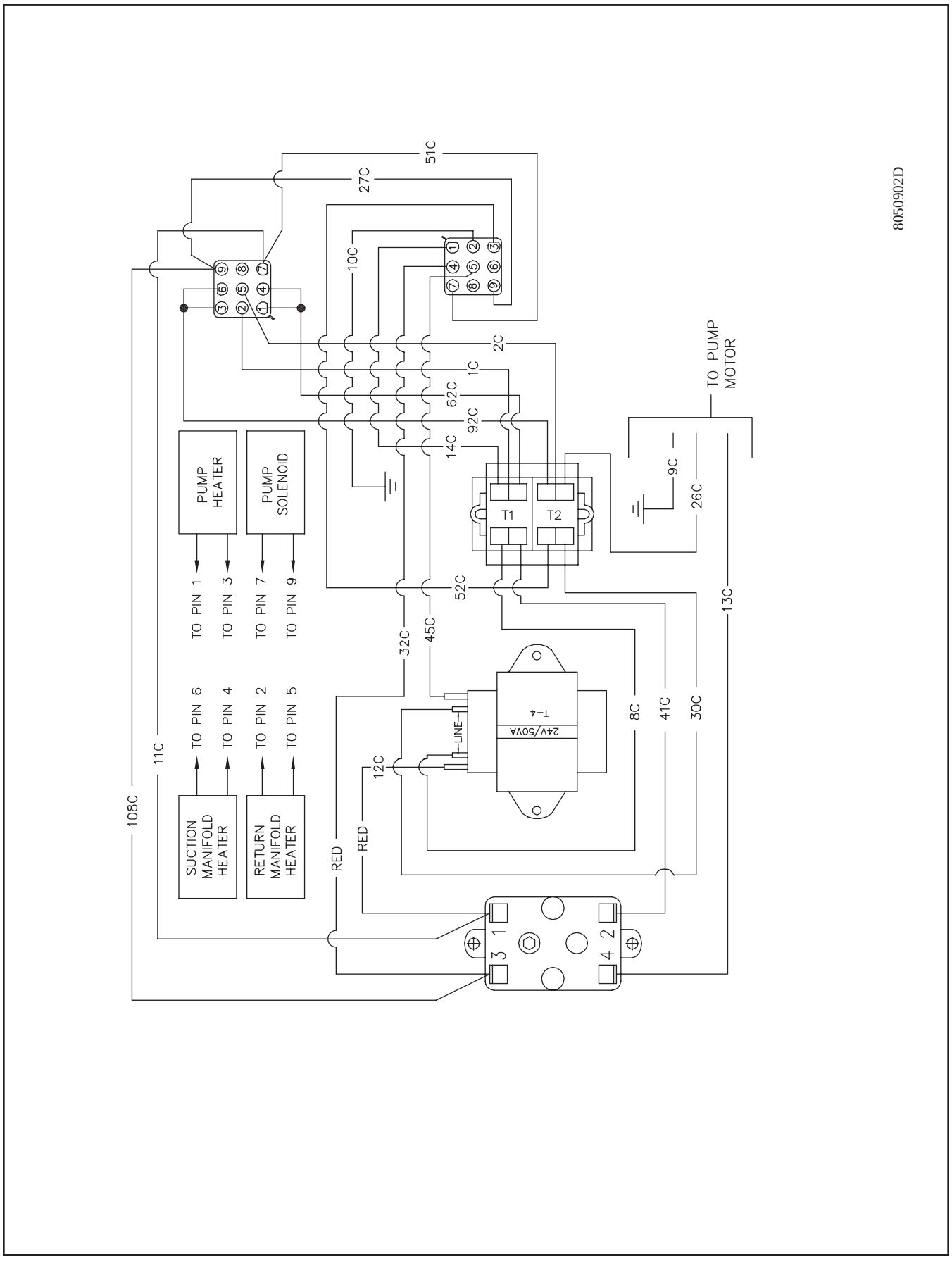
1.8.3 Non-Computer Controlled Fryer



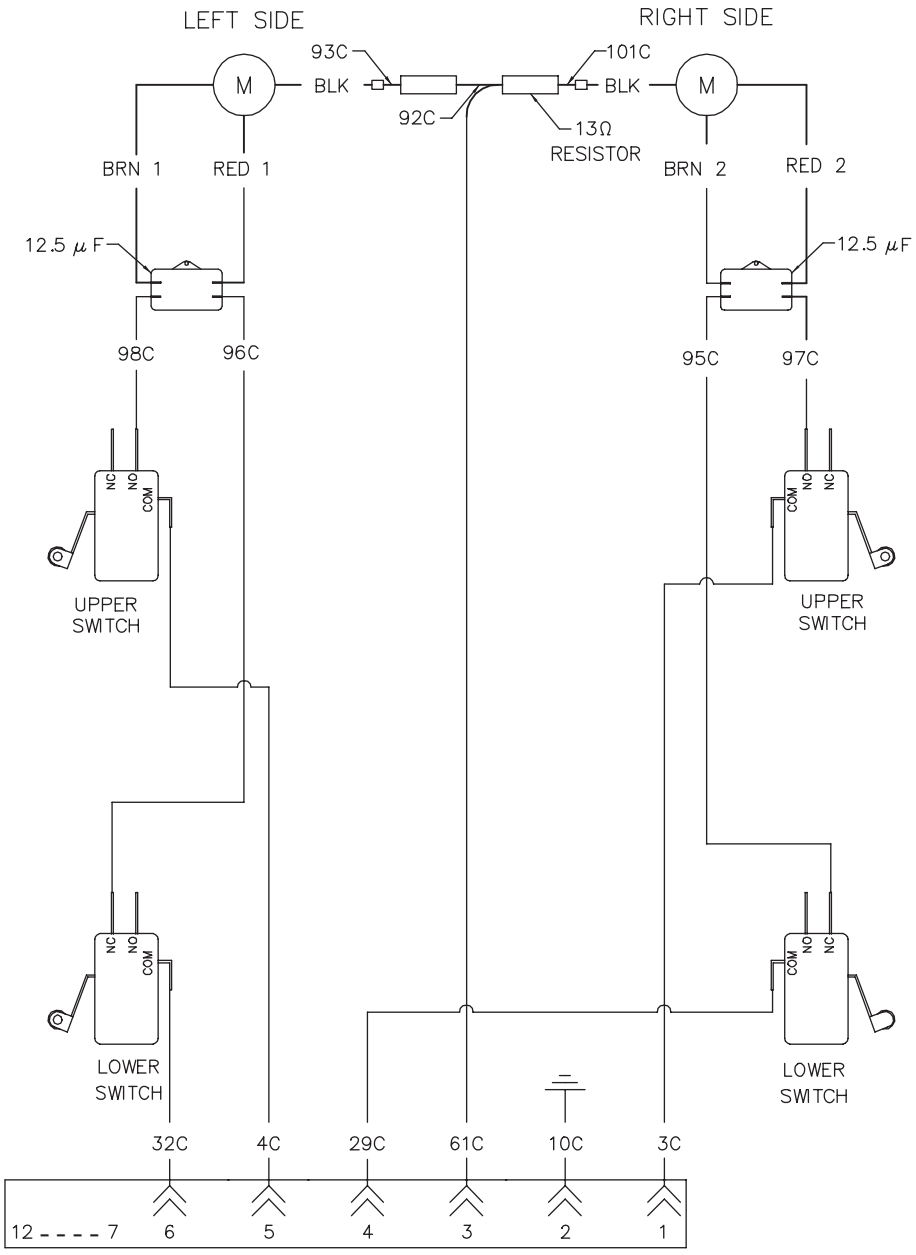
1.8.4 Electronic Ignition



1.8.5 Filter Box

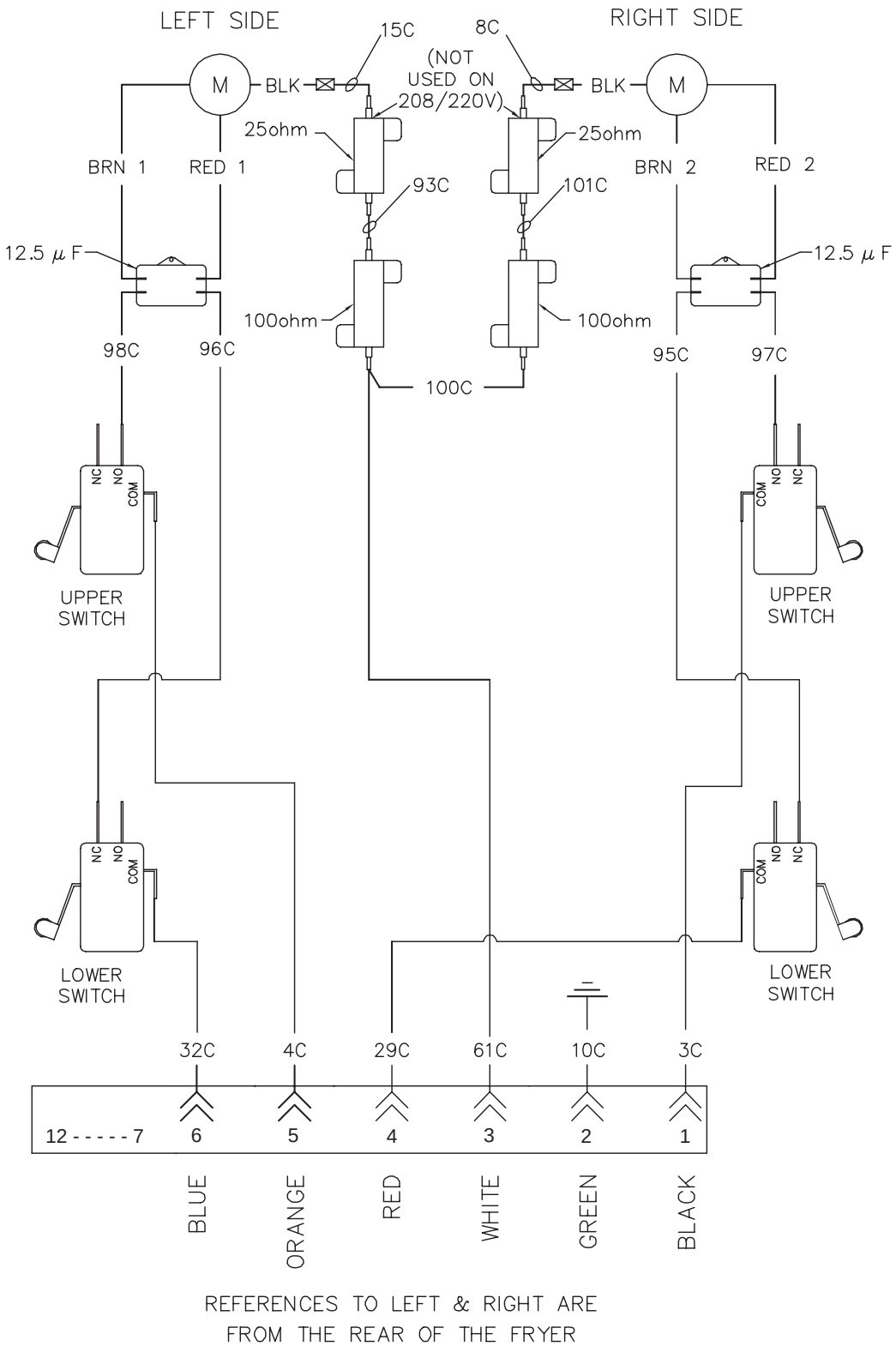


1.8.6 Modular Basket Lift 100/120V



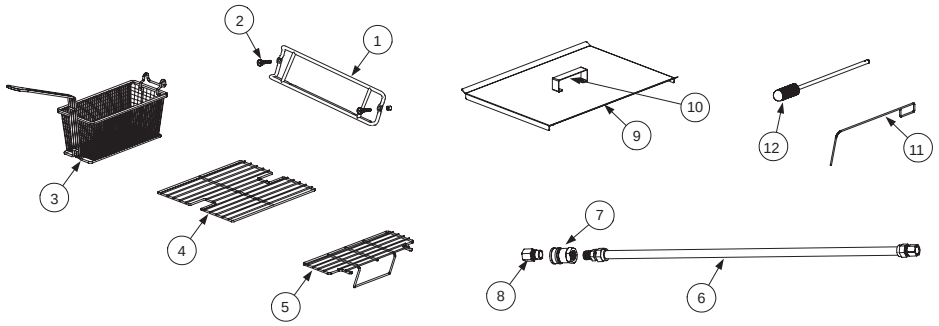
REFERENCES TO LEFT & RIGHT ARE
FROM THE REAR OF THE FRYER

1.8.7 Modular Basket Lift 208/250V



PERFORMANCE PRO SERIES GAS FRYERS MODELS 35 & 45
CHAPTER 2: PARTS LIST

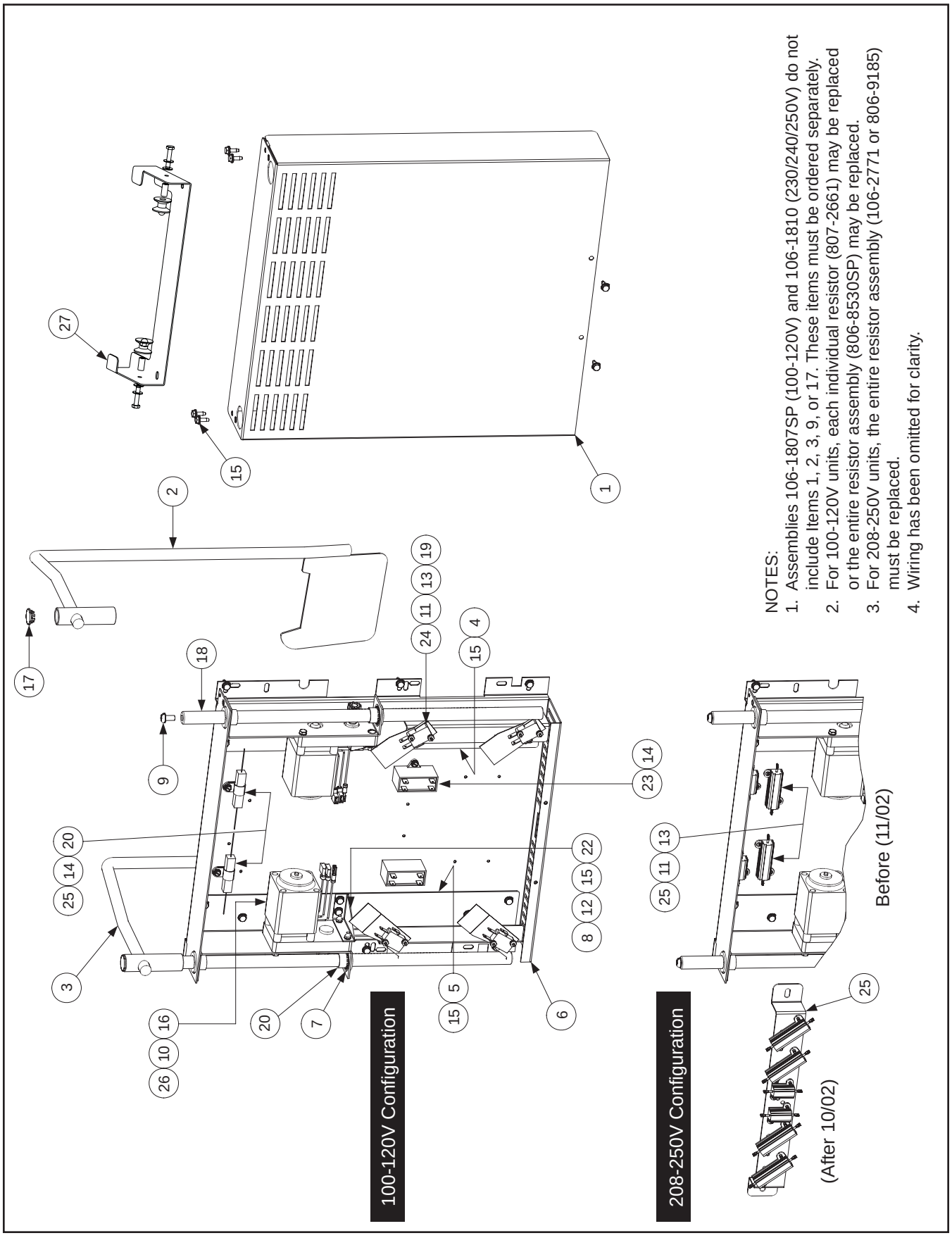
2.1 Accessories



ITEM	PART #	COMPONENT
1	810-2793	Wireform Basket Hanger
*	106-2186	Basket Hanger, Burger King®
*	823-4447	Basket Hanger, Buffalo Wild Wings® and Jack in the Box®
*	823-1462	Basket Hanger, Checkers®
*	106-2185	Basket Hanger, Checkers®, Bracket
2	809-0171	Basket Hanger Screw *(basket hanger spacer, 809-0921)*
*	803-0099	Basket, Full
3	803-0271	Basket, Twin
*	803-0190	Basket, Twin, Buffalo Wild Wings®
*	803-0357	Basket, Triple
4	803-0132	Wire Basket Support Rack, Full-vat (MJ 45)
5	803-0133	Wire Basket Support Rack, Dual-vat
*	803-0032	Wire Basket Support Rack, without Notches (MJ 35)
*	803-0136	Basket Support Screen (MJ 45)
*	803-0037	Basket Support Screen (MJ 35)
6	810-0088	Flexible Gas Line, 1-36
*	810-0084	Flexible Gas Line, ¾-48
7	810-0073	Quick Disconnect Fitting, 1” Female
8	810-0074	Quick Disconnect Fitting, 1” Male
*	803-0188	Sediment Tray, Full-vat (MJ 35)
*	803-0103	Sediment Tray, Full-vat, (MJ 45)
*	803-0107	Sediment Tray, Dual-vat, Left (MJ 45)
*	803-0108	Sediment Tray, Dual-vat, Right (MJ 45)
9	806-5518	Cover, Frypot or Holding Station, Full-vat
*	806-3232	Cover, Frypot or Holding Station, Dual-vat
10	826-0993SP	Handle Kit, Frypot Cover
*	826-1351	Nut Retainer, ¼-20 Nutsert (pkg. of 10)
11	803-0197	Fryer Friend (Clean-out Rod), 27”
12	803-0209	Brush, Frypot
13	803-0278	Brush, L-Shaped
14	823-3660	Crumb Scoop
15	823-5936	Splash Guard, Right
16	823-5937	Splash Guard, Left
*	OPT32686	Foodwarmer (with scoop pan)
*	806-6988SP	Foodwarmer Kit
*	106-4786	Spreader Storage Pan
*	910-3557	Flue Deflector *(See Section 2.6 for more information and associated items.)*
*	826-1017	Screw Kit, Flue Deflector *(See Section 2.6 for more information and associated items.)*
*	KIT3647	Applebee’s® Heat Lamp *(available as OPT33030 for MJ 45 only)*

* Not illustrated.

2.2 Basket Lift and Associated Parts


NOTES:
1. Assemblies 106-1807SP (100-120V) and 106-1810 (230/240/250V) do not include Items 1, 2, 3, 9, or 17. These items must be ordered separately.
2. For 100-120V units, each individual resistor (807-2661) may be replaced or the entire resistor assembly (806-8530SP) may be replaced.
3. For 208-250V units, the entire resistor assembly (106-2771 or 806-9185) must be replaced.
4. Wiring has been omitted for clarity.
100-120V Configuration
208-250V Configuration
Before (11/02)
(After 10/02)

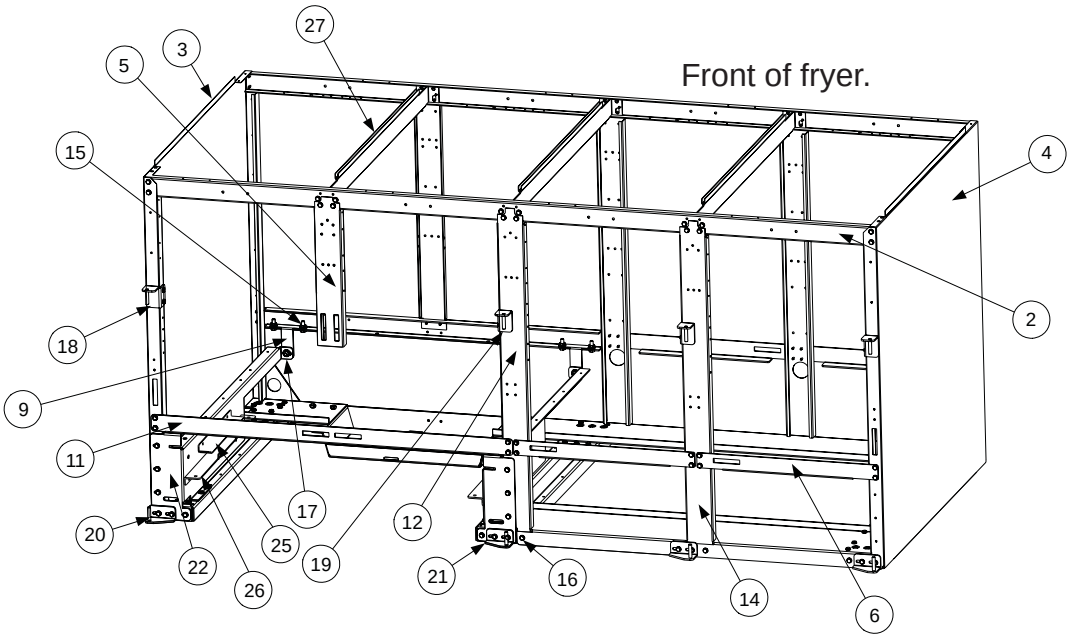
ITEM	PART #	COMPONENT
1	910-4776	Enclosure, Stainless Steel
*	900-4776	Enclosure, Cold-rolled Steel
*	826-1991	Kit, Cold-rolled Steel Enclosure (with 12 screws)
2	823-7062	Basket Lift Arm, Left
3	823-7064	Basket Lift Arm, Right
4	901-8499	Chassis, Left
5	902-8499	Chassis, Right
6	200-2942	Mount, Basket Lift
7	809-0082	Truarc Retaining Ring, ¾”
8	826-1361	Screw, 8-32 x 1” Slotted Truss Head (pkg. of 25)
9	809-0127	Screw, ¼-20 x ½” Slotted Round Head
10	809-0186	Lock Washer with External Teeth, #8
11	826-1366	Nut, 4-40 Hex Keps with External Tooth (pkg. of 25)
12	809-0247	Nut, 8-32 Hex Keps
13	826-1359	Screw, 4-40 x ¾” Slotted Round Head (pkg. of 25)
14	826-1371	Screw, #8 x ½” Hex Head Drill Point (pkg. of 25)
15	826-1374	Screw, #10 x ½” Hex Head (pkg. of 25)
16	809-0503	Screw, 8-32 x ½” Hex Head
17	810-0172	Plug, Stainless Steel, ⅝” Hole
18	810-1012	Toothed Rod, Basket Lift
19	812-0442	Insulation, Microswitch
20	813-0035	Bushing, Bronze, .640” ID
21	816-0033	Ty Wrap, Screw Mount
22	900-5529	Gusset, Basket Lift Motor
23	807-2513	Capacitor, Motor
24	807-2572	Microswitch
25		Resistor Assembly
	806-8530SP	100-120V
	106-2771	208-250V
26	806-5964SP	Gear Motor Assembly
	810-1013	Gear
	809-0504	Set Screw
	810-0973	Woodruff Key
27	806-9257SP	Roller Guide/Bracket Assembly
		Basket Lift Assemblies
*	106-1807SP	100-120V (without relay)
*	106-1810SP	208-250V
*	KIT6421	Complete 120V Basket Lift Assembly for FPP35/45
*	KIT7193	Complete 230V Basket Lift Assembly for FPP35/45
*	KIT7413	Complete 230V Basket Lift Assembly for PMJ35
*	807-3699	Harness, Basket Lift
28	824-1476	Drip Pan, Left
29	824-1477	Drip Pan, Right
*	200-8862	Drip Plate/Shield

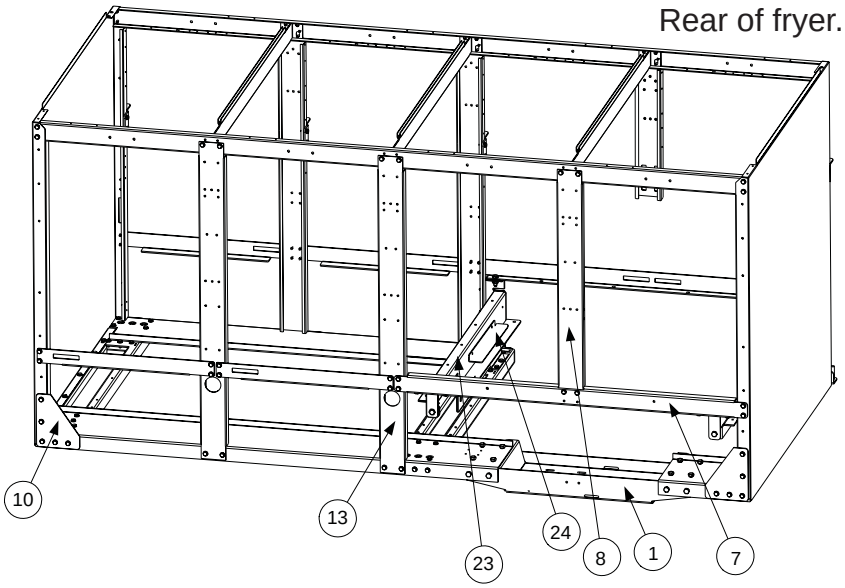
* Not illustrated.

** Diagrams on Pages 1-22, 1-31, 1-32 in Chapter 1.

2.3 Cabinetry

2.3.1 FPP/FMP Model Cabinetry





Four station fryer shown.

ITEM	PART #	COMPONENT
		Cabinet Assemblies (see Section 2.3.3)
	106-9088	Two Station Fryer, Stainless *(106-9089, Cold Rolled Steel)*
	106-9090	Three Station Fryer, Stainless *(106-9091, Cold Rolled Steel)*
	106-9092	Four Station Fryer, Stainless *(106-9093, Cold Rolled Steel)*
	106-9094	Five Station Fryer, Stainless *(106-9095, Cold Rolled Steel)*
	106-4525	Applebee's® Dump Station
1		**Base Assemblies**
	106-3785	Two Station Fryer
	106-4019	Three Station Fryer
	106-4020	Four Station Fryer
	106-4021	Five Station Fryer
2		**Brace, Top Cabinet**
	900-7730	Two Station Fryer
	900-9430	Three Station Fryer
	900-9318	Four Station Fryer
	200-5474	Five Station Fryer
*		**Back Panels, Upper** *(Use with cabinet assemblies.)*
	200-6901	Use with 106-3783, 106-4017, 106-4018, 106-4031, 106-4033, 106-4034.
	200-6906	Use with 106-4016, 106-4018, 106-4032, 106-4034.
	210-6608	Use with 106-3783, 106-4017, 106-4018.
	210-6895	Use with 106-4016, 106-4018.
		Back Panels, Lower
	200-6905	Use with 106-3783, 106-4017, 106-4018, 106-4031, 106-4033, 106-4034.
	200-6908	Use with 106-4016, 106-4018, 106-4032, 106-4034.
	210-6897	Use with 106-4016, 106-4018.
	210-6874	Use with 106-4034, 106-4032, 106-4016, 106-4018.
	200-8567	**Use with 106-4525 (Applebee's® Dump Station).**
3		**Side, Left Cabinet**
	211-6893	Side, Left Cabinet, Stainless Steel *(201-6917, Cold Rolled Steel)*
	211-6933	Side, Left Cabinet, Stainless Steel with hole *(201-6934, Cold Rolled Steel)*
4		**Side, Right Cabinet**
	212-6893	Side, Right Cabinet, Stainless Steel *(202-6917, Cold Rolled Steel)*
	212-6933	Side, Right Cabinet, Stainless Steel with hole *(202-6934, Cold Rolled Steel)*
		Other Components
*	220-0927	Heat Shield, Filter, Buffalo Wild Wings (220-0928, Third Vat)
*	200-6908	Back, Lower Cabinet, Aluminized (three and five station fryers)
*	210-6897	Back, Lower Cabinet, Stainless Steel (three and five station fryers)
5	200-2235	Bracket, Component Box
6	200-1953	Brace, Front Cabinet
7	200-6057	Brace, Cabinet Cross
8	200-6062	Support, Upper Rear Cabinet
9	200-6310	Support, Rear Cabinet Rail
10	200-6346	Gusset, Rear Cabinet
11	200-6486	Brace, Front Cross
12	200-6892	Post, Front Door Long
13	200-6894	Post, Rear Cabinet Long
14	200-6911	Post, Front Cabinet Long
15	826-1389	Screw, ¼-20 x ¾" Hex Head (pkg. of 10)
*	910-7443	Top Connecting Strip, Frypot
*	910-6650	Channel, Top Connecting Strip
*	823-1885	Top Connecting Strip and Channel, Burger King
*	910-4617	Top Connecting Strip, Fryer-to-Spreader
16	826-1374	Screw, #10 x ½" Washer Hex Head (pkg. of 25)
17	809-0417	Nut, Flange
18	823-4727	Hinge Assembly, Left Upper

* Not illustrated.

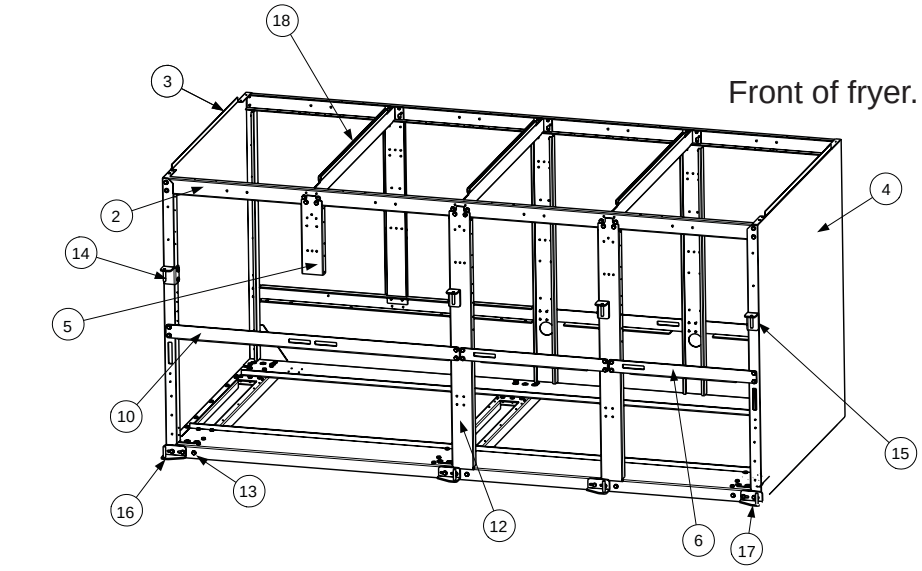
FPP/FMP Model Cabinetry *continued on next page...*

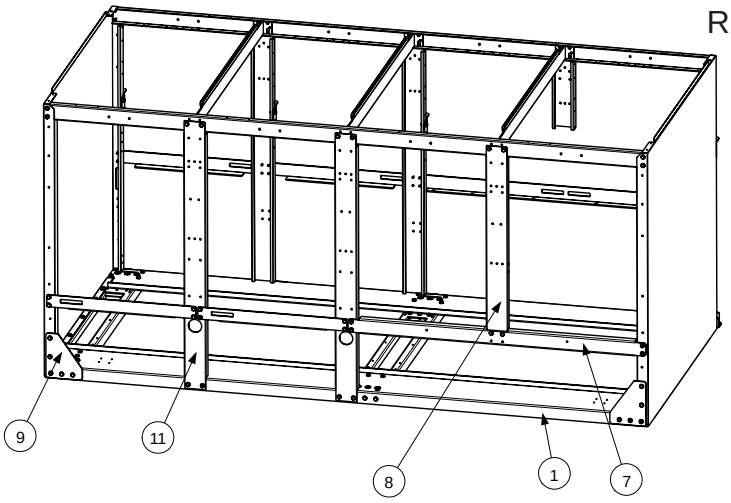
** Four station fryers use two backs made for two station fryers. Five station fryers use two backs: a three station fryer back and a two station fryer back.

ITEM	PART #	COMPONENT
19	823-4728	Hinge Assembly, Right Upper
20	823-4745	Hinge Assembly, Left Lower
21	823-4746	Hinge Assembly, Right Lower
22	220-4180	Rail Assembly, Left (*nut separate: 809-0495*)
23	106-9083	Rail Assembly, Right (*nut included*)
24	222-4183	Rail, RH Filter Pan Retaining
25	221-4483	Rail, LH Filter Pan Retaining
26	220-4182	Rail, Slide
*	200-6935	Stop, Filter Rail
27	900-7326	Divider
*	KIT0293	Joiner Kit, Applesbee's® Dump Station
*	210-9291	Top Connecting Strip, Fryer-to-Fryer
28	809-0193	Nylon Washer
*	810-2346	Magnet, Door
*		Garland Range Cabinetry (See *Section 2.19, Garland Range*)

* Not illustrated.

2.3.2 PMJ (Non-filter) Model Cabinetry





Four station fryer shown.

ITEM	PART #	COMPONENT
		Cabinet Assemblies
	106-4028	Single Station Fryer, Stainless *(106-4030, Cold Rolled Steel) (806-6741 Garland)*
	106-4036	Two Station Fryer, Stainless *(106-4051, Cold Rolled Steel)*
	106-4037	Three Station Fryer, Stainless *(106-4052, Cold Rolled Steel)*
	106-4038	Four Station Fryer, Stainless *(106-4053, Cold Rolled Steel)*
	106-4039	Five Station Fryer, Stainless *(106-4054, Cold Rolled Steel)*
	106-4525	Applebee's® Dump Station
1		**Base Assemblies**
	106-5440	Single Station Fryer
	106-4040	Two Station Fryer
	106-4041	Three Station Fryer
	106-4042	Four Station Fryer
	106-4043	Five Station Fryer
*		**Back Panels, Single**
	200-6903	Use with 106-4030, 106-4028.
	200-6904	Use with 106-4030, 106-4028.
	210-6817	Use with 106-4028.
	210-6818	Use with 106-4028.
	200-5867	Use with 105-4525 (Applebee's®).
*		**Back Panels, Upper** *(Use with cabinet assemblies.)*
	200-6901	Use with 106-4036, 106-4038, 106-4039, 106-4051, 106-4053.
	200-6902	Use with 106-4036, 106-4051, 106-4053.
	200-6906	Use with 106-4037, 106-4039, 106-4052.
	200-6907	Use with 106-4052, 106-4037.
	210-6608	Use with 106-4036. 106-4038. 106-4039.
	210-6895	Use with 106-4037, 106-4039.
	210-6896	Use with 106-4037.
	210-6650	Use with 106-4036, 106-4038.
*		**Back Panels, Lower** *(Use with cabinet assemblies.)*
	200-6905	Use with 106-4036, 106-4038, 106-4039, 106-4051, 106-4053.
	200-6908	Use with 106-4037, 106-4039, 106-4052.
	210-6874	Use with 106-4037, 106-4039, 106-4052.
	210-6897	Use with 106-4037, 106-4039.
2		**Brace, Top Cabinet**
	900-4813	Single Station Fryer
	900-7730	Two Station Fryer
	900-9430	Three Station Fryer
	900-9318	Four Station Fryer
	200-5474	Five Station Fryer
3		**Side, Left Cabinet**
	211-6893	Side, Left Cabinet, Stainless Steel *(201-6917, Cold Rolled Steel)*
	211-6933	Side, Left Cabinet, Stainless Steel with hole *(201-6934, Cold Rolled Steel)*
4		**Side, Right Cabinet**
	212-6893	Side, Right Cabinet, Stainless Steel *(202-6917, Cold Rolled Steel)*
	212-6933	Side, Right Cabinet, Stainless Steel with hole *(202-6934, Cold Rolled Steel)*
		Other Components
*	200-6908	Back, Lower Cabinet, Aluminized (three and five station fryers)
*	210-6897	Back, Lower Cabinet, Stainless Steel (three and five station fryers)
5	200-2235	Bracket, Component Box
6	200-1953	Brace, Front Cabinet
7	200-6057	Brace, Cabinet Cross
8	200-6062	Support, Cabinet upper Rear
9	200-6346	Gusset, Rear Cabinet

* Not illustrated.

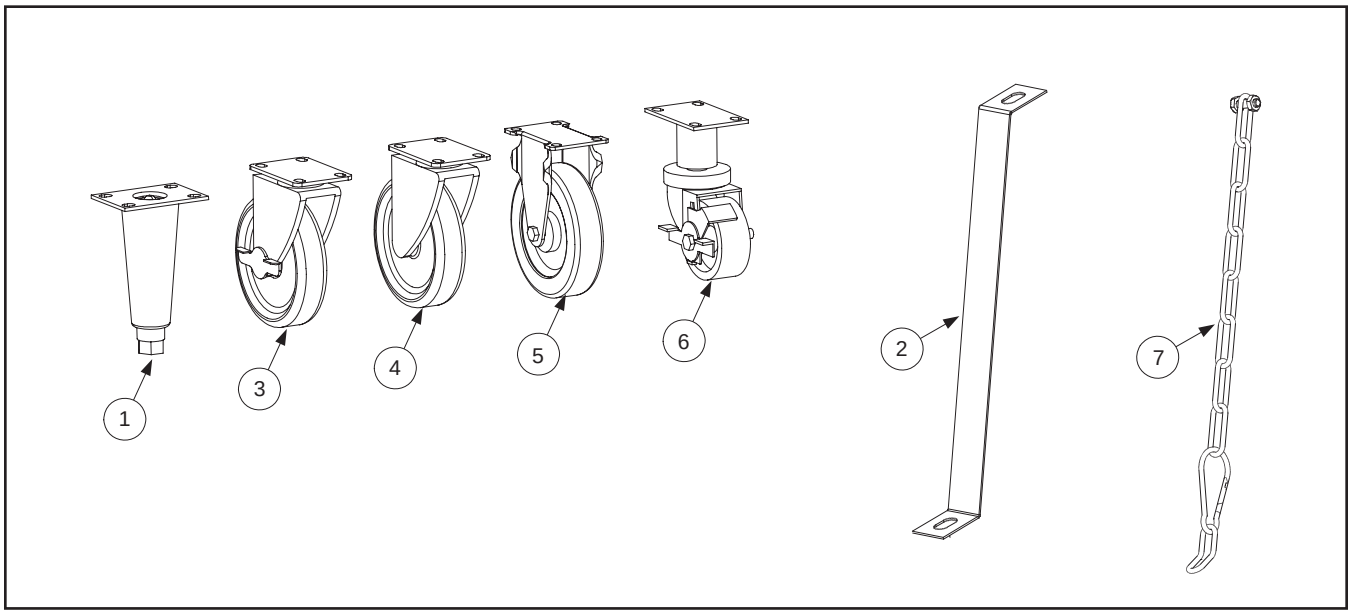
PMJ (Non-filter) Model Cabinetry *continued on next page...*

** Four station fryers use two backs made for two station fryers. Five station fryers use two backs, a three station fryer back with a two station fryer back.

ITEM	PART #	COMPONENT
10	200-6486	Brace, Front Cross
11	200-6894	Post, Rear Cabinet Long
12	200-6911	Post, Front Cabinet Long
13	826-1374	Screw, #10 x ½" Washer Hex Head (pkg. of 25)
14	823-4727	Hinge Assembly, Left Upper
15	823-4728	Hinge Assembly, Right Upper
16	823-4745	Hinge Assembly, Left Lower *(823-4713 on single fryers)*
17	823-4746	Hinge Assembly, Right Lower
18	900-7326	Divider
*	KIT0293	Joiner Kit, Applesbee's® Dump Station
*	810-1105	Magnet, Door - Single Fyer
20	809-0193	Nylon Washer

* Not illustrated.

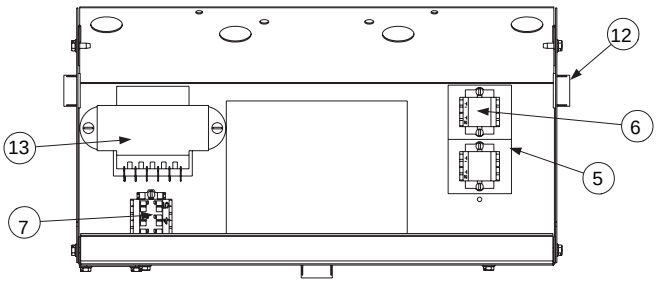
2.4 Casters, Legs, and Associated Hardware



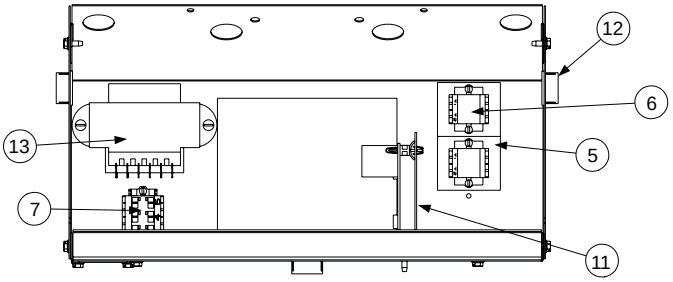
ITEM	PART #	COMPONENT
1		**Legs**
	810-3169	Legs (pkg. of 4)
	810-3168	Leg, Individual
2	826-1095	Anchor Strap Kit
		Casters
3	810-0357	Caster, 5" Swivel with Brake (with hardware, 826-1118)
4	810-0356	Caster, 5" Swivel without Brake (with hardware, 826-1117)
5	810-0378	Caster, 5" Rigid
6	810-0651	Caster, 3" with Brake, Filter Cabinet (with hardware, 826-1130)
*	810-0750	Caster, 5" Rigid (PMJ units)
7	826-0900	Chain Restraint Kit
*	826-1113	Fastener Kit (one per caster or leg)

* Not illustrated.

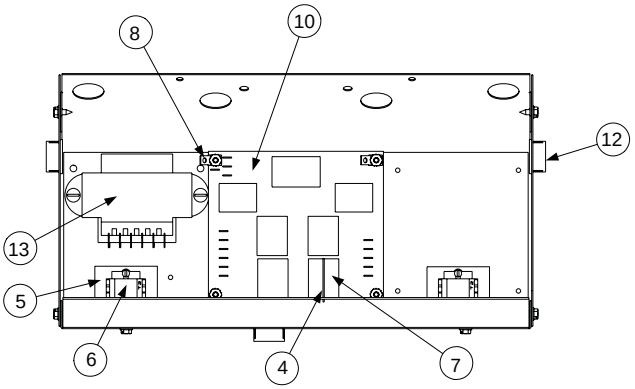
2.5 Component Boxes



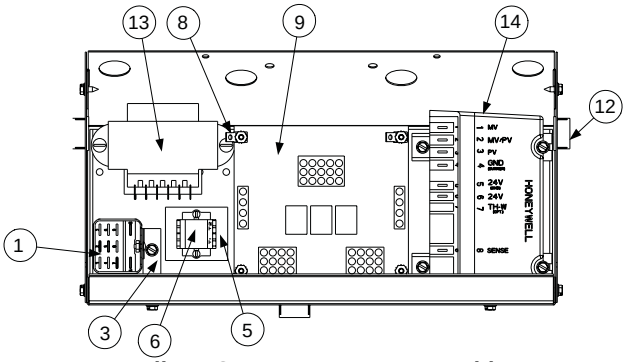
Full-vat Component Box Assembly



Full-vat Component Box Assembly
[with Melt Cycle Timer]



Full-vat Component Box Assembly
[Standing Pilot]



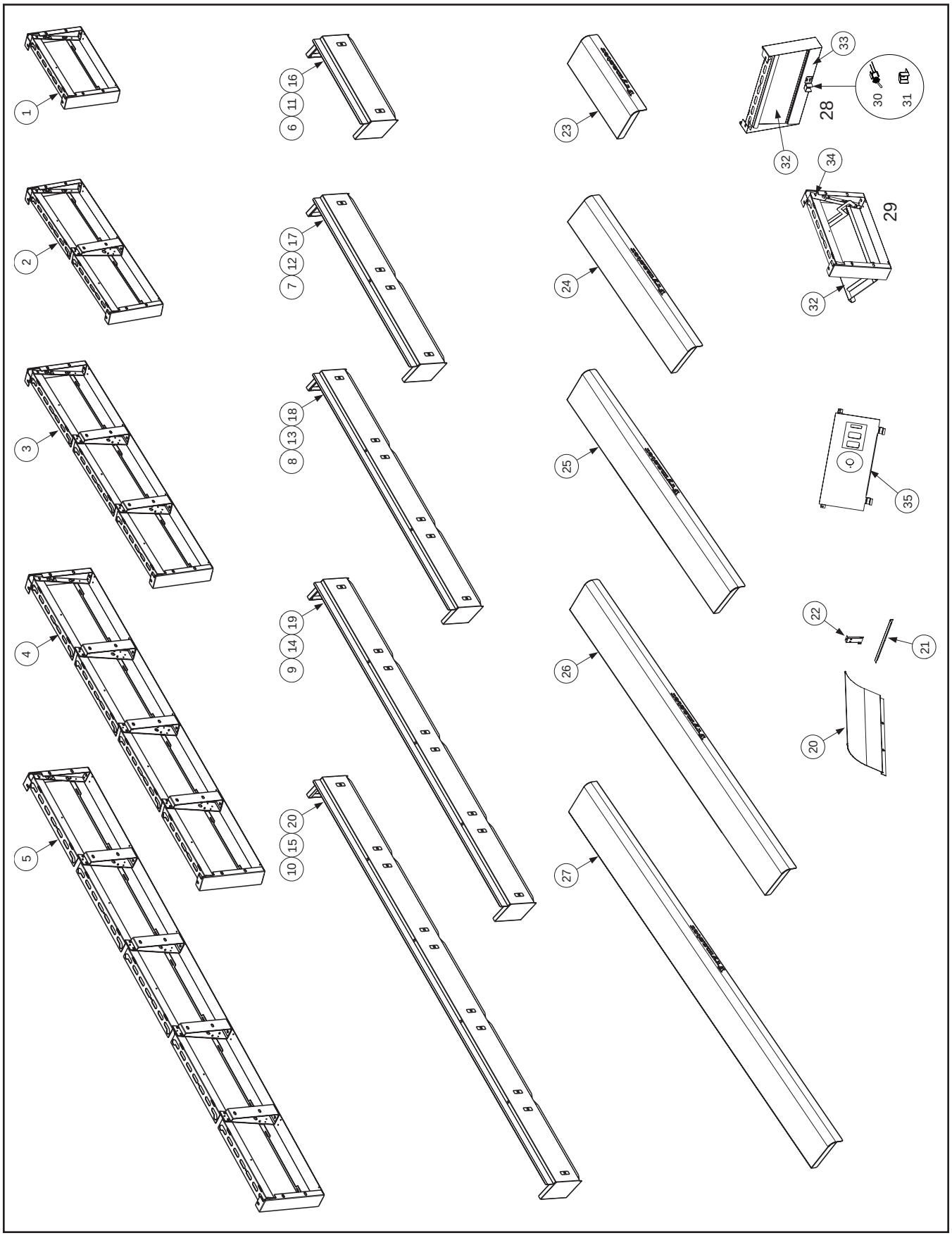
Full-vat Component Box Assembly
[Electronic Ignition]

(Illustrations may differ slightly from actual boxes depending upon the configuration of the fryer.)

ITEM	PART #	COMPONENT
1	807-0670	Relay, 24V
2	807-0833	Relay, Latch
*	807-0834	Relay, Basket Lift
3	200-7176	Bracket, Relay
4	810-2243	Spring, Relay Hold Down
5	816-0217	Insulating Paper
6	810-1164	Terminal Block, 1 Plc. Screwless Terminal
7	810-1168	Terminal Block, Screwless End
8	826-1337	Tab, Terminal (pkg. of 5)
9	806-5857	Interface Board, Electronic Ignition
10	826-2425	Interface Board, Pilot Ignition
11	826-1546	Melt Cycle Timer Kit
12	810-0045	Bushing, .875
13		Transformers
	807-0800	120V/24V
	807-2176	100-120V/12V & 24V
	807-0680	208-240V/12V & 24V
	807-1999	208-240V/24V, 208-250V/12V & 24V
14	807-5244	Ignition Module, Fenwal
*	826-2898	Kit to replace Honeywell module with Fenwal (807-5244)
*	806-5879SP	Cable Assembly, Ignition Module, Interface Board to Module
*	806-5830SP	Cable, Ignition, with Ceramic Cover
*	807-3483	Cable, Ignition (used with MJ45 ignition cable kit, 826-1721)
*	807-4375	Connector, Rajah
*	807-1928	Flame Sensor Electrode
*	WIR0165	Component Shield (Std.) Wiring (FV, 208-250 Export only)
*	809-0349	Spacer, Interface Board
*	826-1346	Spacer, Ignition Module (pkg. of 10)
*	WIR0148	Component Shield (with Mechanical Timer) Wiring
*	WIR0161	Component Shield (with Melt Cycle) Wiring (DV)
*	WIR0164	Component Shield (with Melt Cycle) Wiring (FV, 240V and below)
*	WIR0160	Component Shield Wiring (DV)
*	WIR0163	Component Shield Wiring (FV)
*	WIR0162	Component Shield Wiring (FV, DV)
*	WIR0258	Wiring, Component Shield
*	WIR0329	Component Shield Drainswitch Wiring (DV/FV)
*	WIR0349	Microswitch Wiring (DV)
*	WIR0350	Microswitch Wiring (DV)

* Not illustrated.

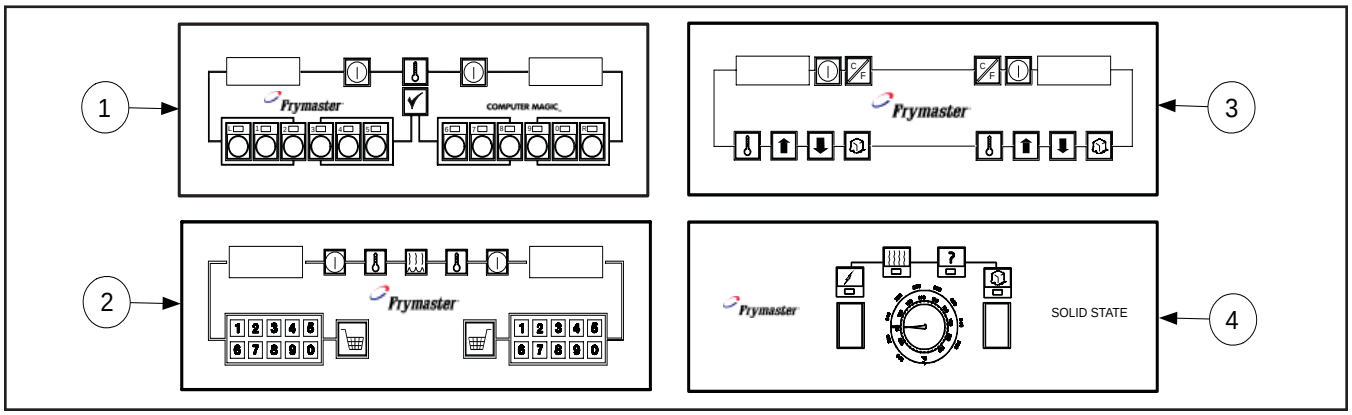
2.6 Control Panel Assemblies, Flue Caps, and Related Items



ITEM	PART #	COMPONENT
		Control Panel Assemblies
1	108-1550	Single Station Fryer
2	108-1551	Two Station Fryer
3	108-1552	Three Station Fryer
4	108-1553	Four Station Fryer
5	108-1554	Five Station Fryer
*	106-4535	Applebee's® Control Panel
		Flue Caps
		PMJ 45
6	210-6812	Single Station Fryer
7	106-4012	Two Station Fryer
8	106-4013	Three Station Fryer
9	106-4014	Four Station Fryer
10	106-4015	Five Station Fryer
		PMJ 35
11	210-6811	Single Station Fryer
12	106-4008	Two Station Fryer
13	106-4009	Three Station Fryer
14	106-4010	Four Station Fryer
15	106-4011	Five Station Fryer
		Burger King/Checkers
16	106-4184	Two Station Fryer *(with buttons, 106-4188)*
17	106-4185	Three Station Fryer *(with buttons, 106-4189)*
18	106-4186	Four Station Fryer *(with buttons, 106-4190)*
19	106-4187	Five Station Fryer *(with buttons, 106-4191)*
*	824-1440	Applebee's® Dump Station Flue Cap
20	910-3557	Deflector, Flue, 2 holes (910-3207, Deflector, Flue, 3 holes)
*	900-3933	Heat Shield, Flue
*	826-1017	Screw Kit, Flue Deflector
21	900-4253	Retaining Strip, Flue Cap
22	200-6584	Support, Flue Cap
*	220-0810	Flue Guard, Panda Express
		Top Cap
23	824-1409	Single Station Fryer
24	824-1410	Two Station Fryer
25	823-4940	Three Station Fryer
26	823-4941	Four Station Fryer
27	823-4942	Five Station Fryer
*	823-4990	Applebee's® Top Cap
		Control Panel Assembly with Thermostat Access Door (MJ 35)
28	106-4050	Complete, with Toggle Switch
29	106-4049	Complete, without Toggle Switch *(see also 106-7449)*
		Thermostat Access Door (MJ 35)
30	106-4386SP	Toggle Switch Assembly
31	824-1394	Switch Guard
32	210-6930	Door Panel
33	210-8289	Frame, with Toggle
34	210-6832	Frame, without Toggle
*	106-4235SP	Control Panel, MV with Mechanical Timer (FPP)
*	210-7026	Control Panel, Spreader Cabinet (FPP)
35	210-6946	Control Panel, with toggle swtch holes (PMJ)
*	210-8686	Control Panel, without toggle switch holes (PMJ)
*		**Carl's Jr. Risers** (see instruction sheet 819-6443 for installation instructions)
	826-2626	Flue Cap, Single
	826-2627	Flue Cap, 2-vat
	826-2628	Flue Cap, 3-vat
	826-2629	Flue Cap, 4-vat
*	809-0171PK	Thumbscrew
*	826-1351	Cage Nut

* Not illustrated.

2.7 Controller Assemblies



ITEM	PART #	COMPONENT
1		**Computer Magic III.5**
	823-2327	Full-vat (CE, 826-2328)
	826-2390	Dual-vat (CE, 826-2391)
	106-7248	On-hood Remote Computer (FV, MJ 45)
	826-2280	In-hood Remote Computer (FV, MJ 45)
		Buffalo Wild Wings® Computer
	826-2409	Red (*overlay*, 807-4642)
	826-2408	White (*overlay*, 807-4644)
	826-2449	Violet (*overlay*, 807-4643)
2		**Basket Lift Timer**
	826-2393	Full-vat (CE, 106-4172)
	106-4171	Dual-vat (CE, 106-4173)
3		**Digital Controller**
	826-2394	Full-vat (CE, 106-4176)
	106-4175	Dual-vat (CE, 106-4175)
4		**Solid State (Analog Controller)**
	106-3375	Dual-vat
	106-3369	Full-vat (*overlay*, 807-0847)
	810-0387	Knob
		Controller Bezel
		Computer
*	210-5046	Single Station Tab Mount (Use 230-7091 for Screw Mount 09/08)
*	210-5819	Two Station Tab Mount (Use 230-7092 for Screw Mount 09/08)
*	210-6698	Three Station Tab Mount (Use 230-7093 for Screw Mount 09/08)
		No Computer
*	210-6960	Single Station Fryer
*	210-6961	Two Station Fryer
*	210-6962	Three Station Fryer
*	210-6766	Applebee's® Spreader
*	210-7002	Blank Bezel, Single *(Applebee's® spreader, 210-8578)*
*	210-7026	Blank Bezel, 2-vat unit
*	806-3660	Sound Device *(SMT, 810-3141, with 2-pin connector)*
*	806-4797	Buzzer
*	806-2071	Controller Harness
*	807-4199	Controller Harness, SMT (Remote, 807-4397)

* Not illustrated.

WIRING ASSEMBLIES, HARNESSES, AND REMOTE CABLE ASSEMBLIES

Wiring Assemblies and Harnesses	
806-2079SP	100-120V Basket Lift Universal Motor (6-Pin female w/6 wires plus 1 separate wire)
806-8555SP	208-240V Modular Basket Lift Motor (6-Pin female w/6 wires plus 4 separate wires)
106-1822SP	100-120V Modular Basket Lift Motor (12-pin female w/5 wires)
106-1804SP	208-250V Modular Basket Lift Motor (12-pin female w/5 wires plus 3 separate wires)
806-4798SP	Basket Lift Power, Non-CE (6-pin male w/6 wires; connects to 806-2079SP or 806-8555SP)
806-6708SP	Basket Lift Power, CE (6-pin male plus 806-4798)
807-3699	Basket Lift Power, Non-CE/CE (12-pin male w/6 wires, connects to 106-1822SP or 106-1804SP) 68”
806-9777SP	Thermostat Control Universal (control panel-end connections)
806-9778SP	Thermostat Control Universal (component shield-end connections)
806-9779SP	Basket Lift Universal (control panel-end connections)
806-9780SP	Basket Lift Universal (basket lift-end connections)
806-9781SP	Wiring Bundle, Component Shield to Controller and Fryer Components (21-wire bundle)
826-1560	Kit, 45 Series Wiring (contains 806-9777SP through 806-9781SP)
806-3549SP	Interface Board (interface board to fryer components; 12-pin male w/5 wires)
806-6705SP	CE Non-Direct Wiring Power Supply (power cords joined in junction box)
806-4214SP	Fryer to Fryer Drain Safety Switch (2-pin male w/two wires and 2-pin female w/two wires)
806-4215SP	Fryer to Filter Drain Safety Switch (2-pin male w/two wires and 2-pin female w/two wires)

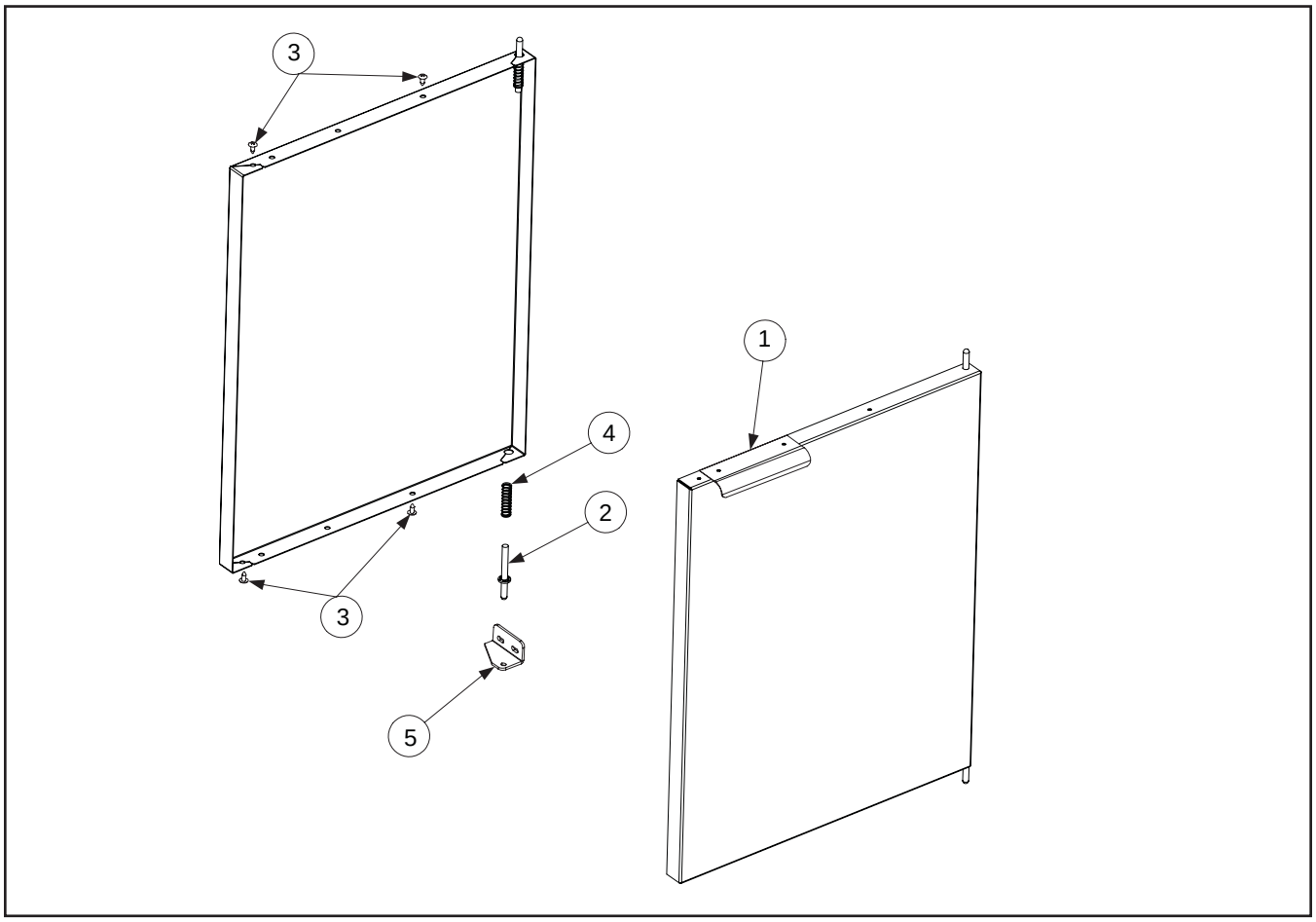
NOTE: Assemblies 806-2079SP, 806-9777SP through 806-9781SP and kit 826-1560 are “universal” in nature. That is, they contain all wires and connectors necessary for all configurations of the application described. Consequently, there may be “extra” wires that are not needed in a particular configuration. Any extra wires should be removed when the assemblies are installed to preclude later confusion.

Remote Computer/Controller to Interface Board Cables Each of these assemblies has two 15-pin male connectors, and a 15-wire cable looped through a ferrite ring. Only the length of the cable varies.	
806-2071	1.0 foot (30.5cm) (For fryer mounted computer.)
806-3383	15.0 feet (4.6m)
806-3388	20.0 feet (6.1m)
806-4318	30.0 feet (9.1m)

Remote Computer/Controller Cable Assemblies Each of these assemblies has one 15-pin male connector, one 15-pin female connector, and a 15-wire cable. Only the length of the cable varies.	
806-3528	7.5 feet (2.3m)
806-3529	8.5 feet (2.6m)
806-3530	10.5 feet (3.2m)
806-3531	12.6 feet (3.8m)

Remote Computer/Controller Cable Assemblies w/Junction Box and Mounting Bracket Each of these assemblies consists of a 4 X 4-inch junction box and mounting bracket assembly with one to four 15-pin female connectors and one to four 15-wire cables with a 15-pin male connector on the free end of each cable.	
806-8350	One Computer/Controller
806-8349	Two Computers/Controllers
806-8348	Three Computers/Controllers
806-8351	Four Computers/Controllers

2.8 Door Assembly

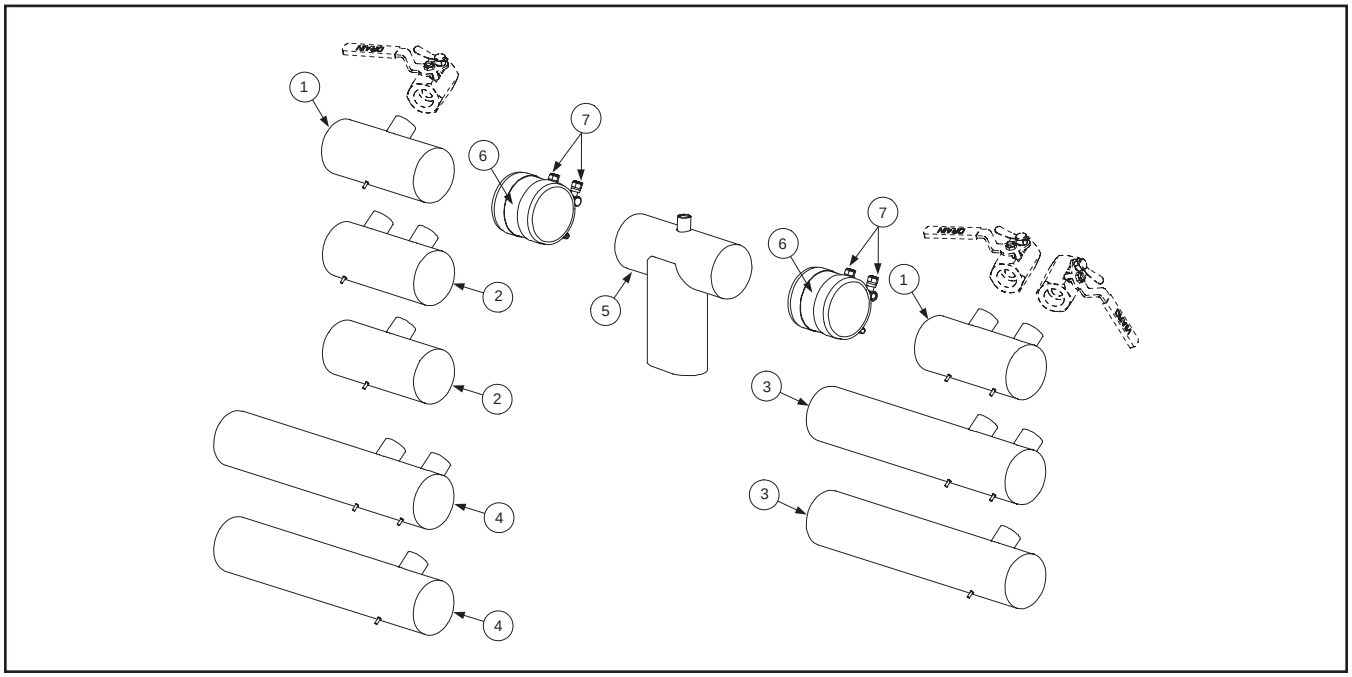


ITEM	PART #	COMPONENT
*	106-3965	**Door Assembly**
1	230-4960	Handle
2	210-6739	Pin, Door Hinge
3	809-0266	Screw, #10 x ½" Phillips Truss Head
4	826-1343	Spring, Door Hinge Lock
5	232-4707	Hinge, Lower, Right
*	231-4707	Hinge, Lower, Left
*	810-2346	Magnet, Horizontal Mount (white)
*	106-3931	Door, Applebee's® Filter/Dump Station

* Not illustrated.

2.9 Drain System Components

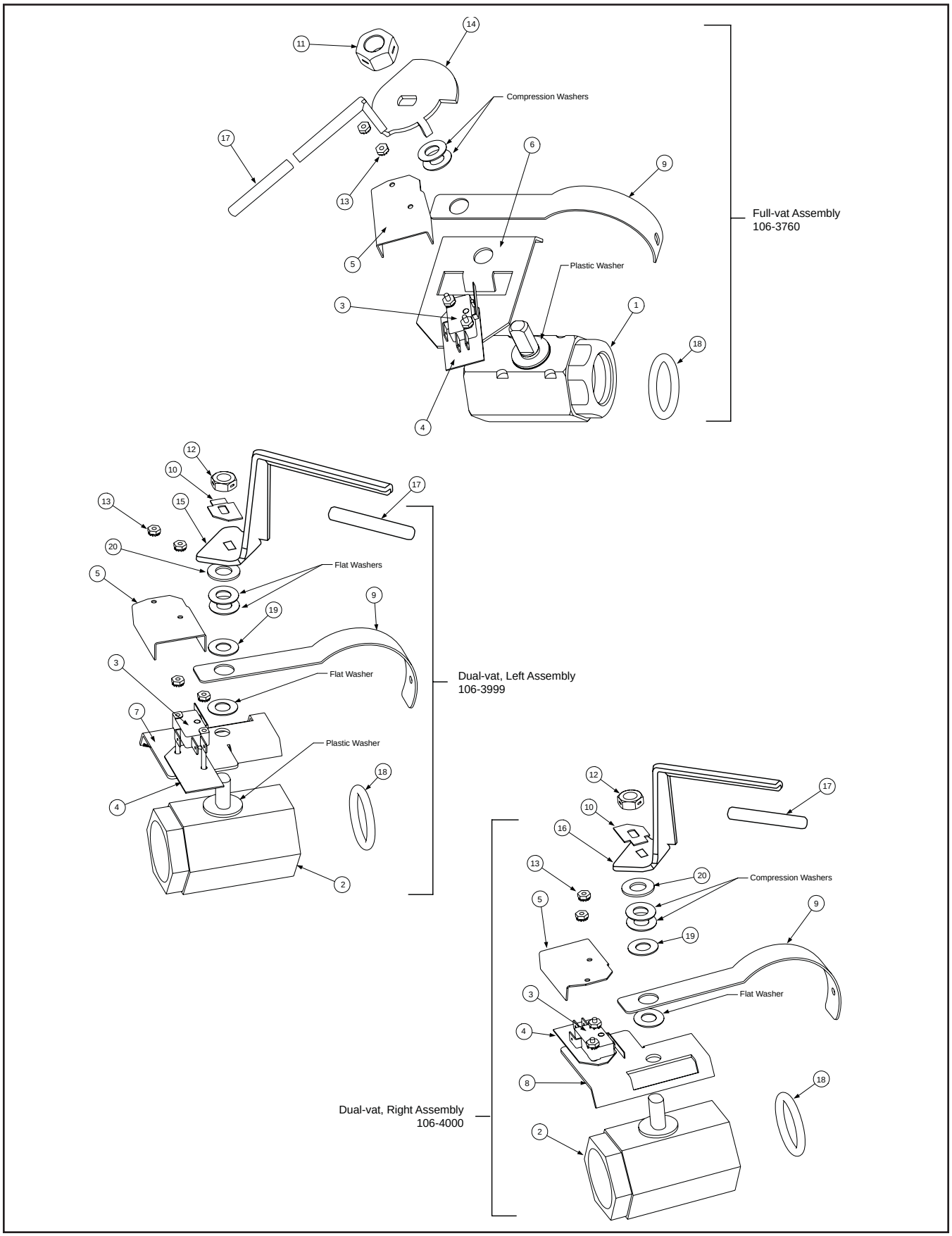
2.9.1 Drain Tube System



ITEM	PART #	COMPONENT
		Drain Tubes
1		Tube, Left/Right End Short
	823-4625	Full-vat
	823-4624	Dual-vat
2		Tube, Left/Right Open Short
	823-4643	Full-vat
	823-4642	Dual-vat
3		Tube, Right End Long
	823-4639	Full-vat
	823-4638	Dual-vat
4		Tube, Left/Right Open Long
	823-4641	Full-vat
	823-4640	Dual-vat
*	200-6473	Spreader, Open Long
*	200-6474	Spreader, Open Short
5	823-4740	Drain Outlet, Both Ends Open
	823-4741	Drain Outlet, One End Closed
		Miscellaneous
6	816-0729	Boot
7	809-0969	Clamp
*	807-2484	Solenoid
*	811-0932	Tubing, ⅜” O.D., Plastic
*	810-1372	90° Fitting, ⅜” O.D.
*	811-1071	Tubing, ¼” O.D., Plastic
*	810-2493	90° Fitting, ¼” O.D.
*	810-2492	Straight Fitting, ¼” O.D.
*	816-0630	Vinyl Stud Cap
8	809-0047	Nut, High Profile Stud Cap
*	KIT6214	Round Drain Boot Kit (includes 2 clamps and 1 boot)

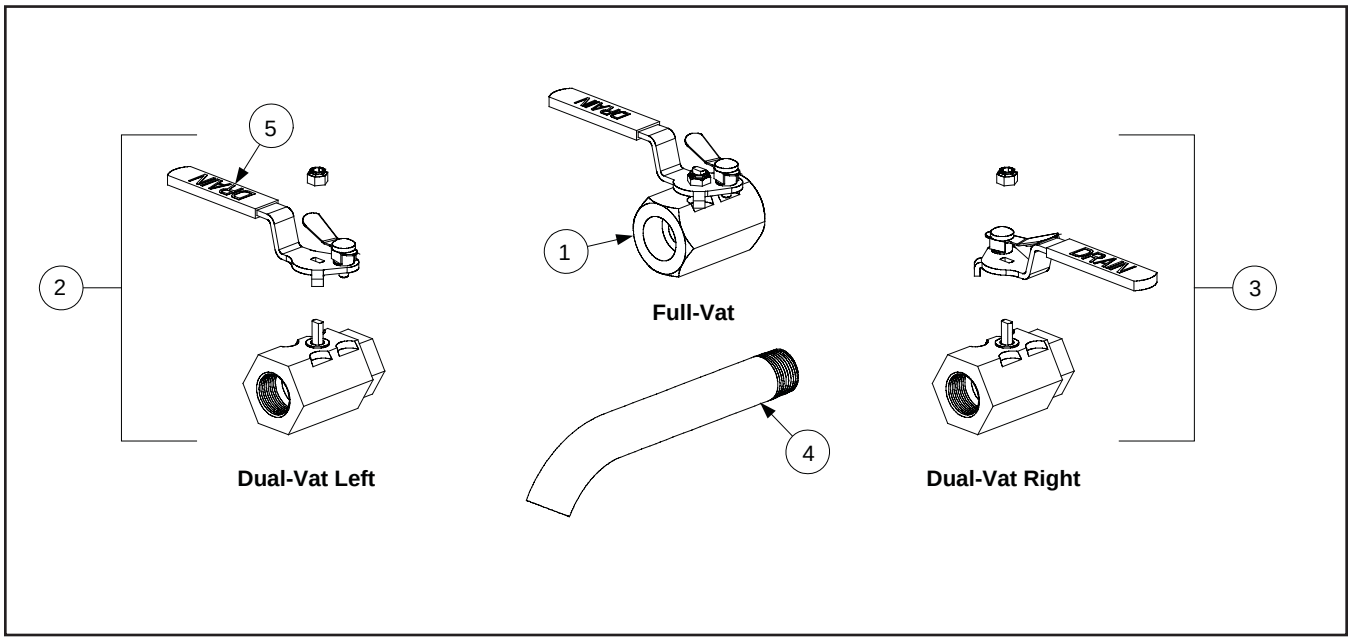
* Not illustrated.

2.9.2 Drain Valves; FPP/FMP Models



ITEM	PART #	COMPONENT
		Drain Valve Assemblies
	106-3760	Full-vat
	106-3999	Dual-vat, Left
	106-4000	Dual-vat, Right
		Drain Valves
1	810-1018	Full-vat, 1.25-inch Drain Valve (without Handle)
2	810-1114	Dual-vat, 1-inch Drain Valve
		Drain Safety Switch
3	807-2103	Microswitch
4	816-0220	Insulation
5	901-2348	Cover
		Bracket
6	806-8137	Full-vat
7	106-2671	Dual-vat, Left
8	106-2672	Dual-vat, Right
		Miscellaneous
9	200-6496	Support, Drain Tube
10	900-2936	Retainer Nut (FV)
*	900-2934	Retainer Nut (DV)
11	809-0540	Nut, 2-way Lock (FV)
12	809-0539	Nut, 2-way Lock (DV)
13	826-0237	Nut, 4-40 Keps Hex with External Tooth (pkg. of 25)
		Handle, Valve
14	824-1602	Full-vat
15	824-1637	Dual-vat, Left
16	824-1636	Dual-vat, Right
17	816-0639	Sleeve, Handle
18	816-0135	O-ring
19	810-1165	Washer, Teflon
20	809-0196	Washer, Flat

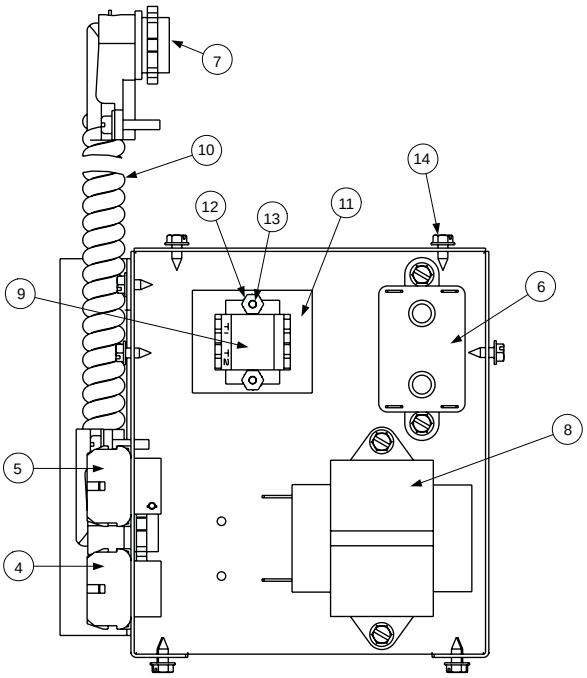
2.9.3 Drain Valves; PMJ Models



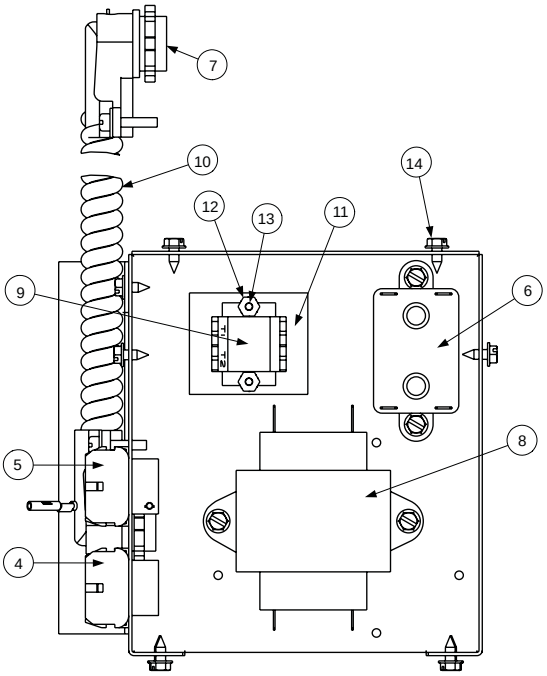
ITEM	PART #	COMPONENT
1	810-1569	Valve, 1.25-inch, Non-filter, Full-vat Drain (with handle)
2	806-7915SP	Valve, 1-inch, Non-filter, Dual-vat, Left Drain
3	806-7916SP	Valve, 1-inch, Non-filter, Dual-vat, Right Drain
*	810-1338	Valve, 1-inch, Universal Ball
*	806-9062	Handle, Left
*	806-9064	Handle, Right
4	812-1226SP	Drain Extension, 1.25-inch, Full-vat
*	812-1227	Drain Extension, 1-inch, Dual-vat
5	810-1427	Handle, Drain Valve
6	810-1568	Handle, Drain Valve
*	816-0211	Sleeve, Handle

* Not illustrated.

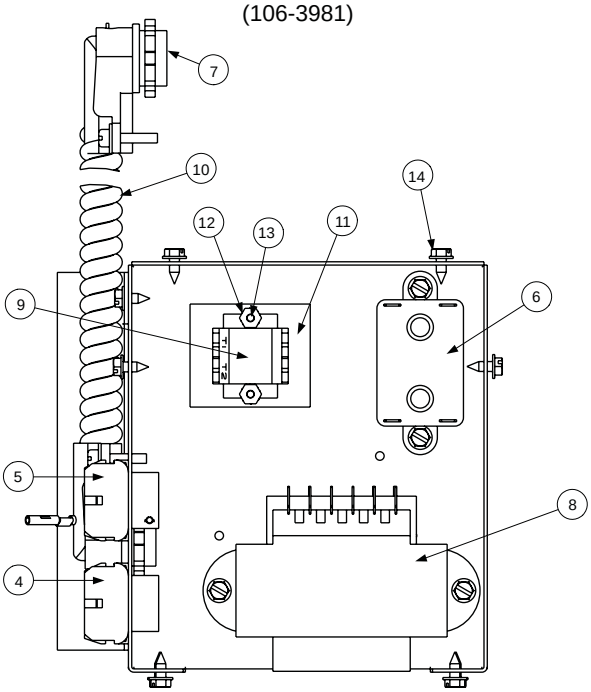
2.10 Filter Boxes



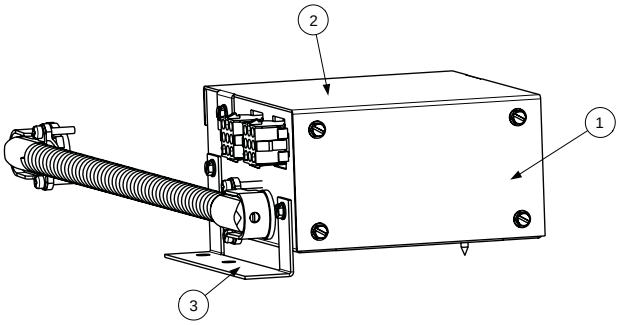
120V Assembly
(106-3981)



208-240V Assembly
(106-3989)



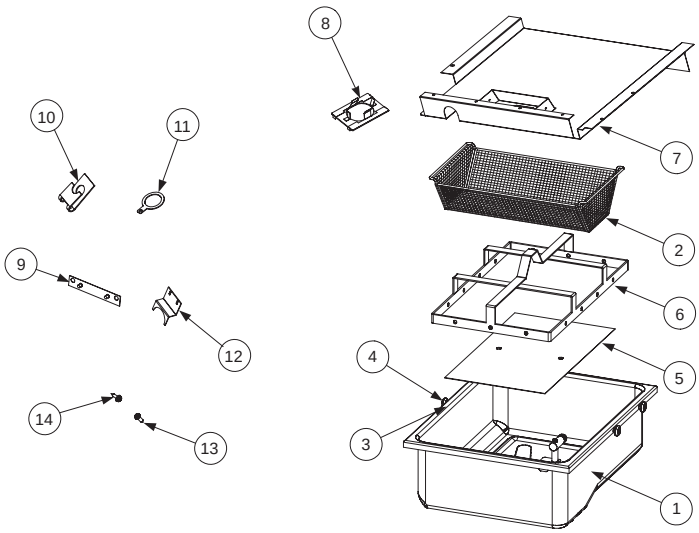
208-250V Assembly
(106-3988)



ITEM	PART #	COMPONENT
		Complete Box Assemblies
	106-3981	120V *(see also 806-6912)*
	106-3988	208-250V
	106-3989	208-240V
		Components
1	200-6836	Filter Box
2	200-6837	Lid
3	200-6838	Mount
4	806-7494	Plug Assembly, Non-Reversing
*	810-1421	Harness (to Control Circuits)
5	806-8021	Plug Assembly, Heater Plug
6	807-0012	Relay, 18 Amp
7	807-0141	Connector, ⅜" Right Angle
8		Transformers
	807-0800	120V/24V
	807-0680	208-240V/24V
	807-1999	208-250V/12V & 24V
9	810-1164	Terminal Block, 1 Plc Screwless
10	812-1704	Conduit, Flex ⅜" x 13.5"
10	812-0636	Conduit, Flex ⅜" x 15"
11	816-0217	Paper, Insulation
12	826-1366	Nut, 4-40 Keps Hex with External Tooth (pkg. of 25)
13	826-1359	Screw, 4-40 x ¾" Slotted Round Head (pkg. of 25)
14	809-0360	Screw, #8 x ⅜" Washer Slotted Hex Head
*	810-1421	Harness, Control Circuit

* Not illustrated.

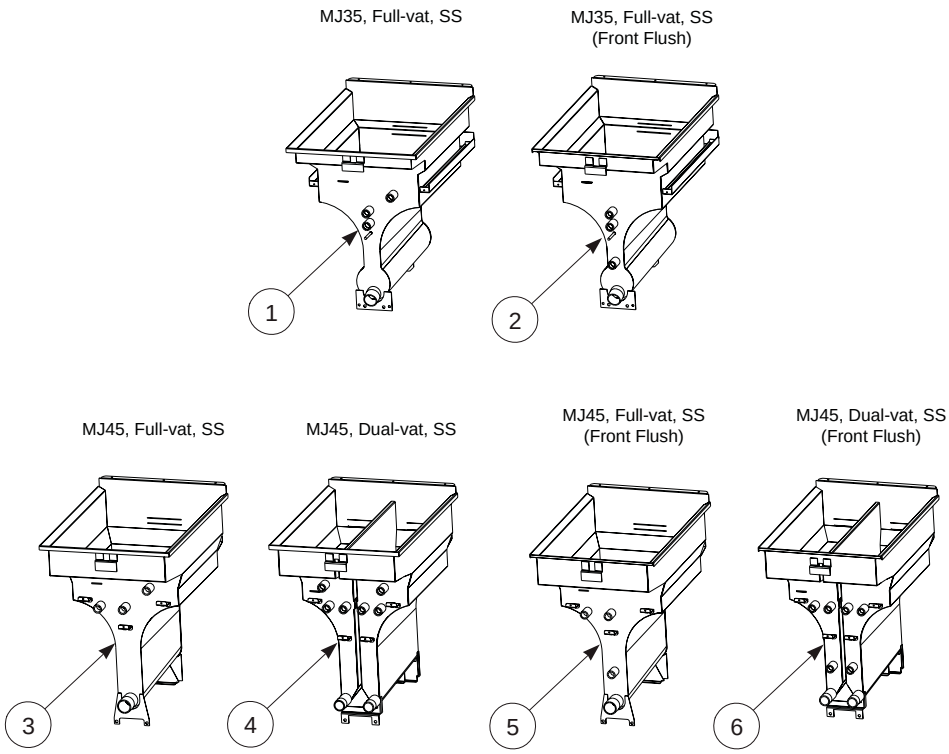
2.11 Filter Pan Assembly



ITEM	PART #	COMPONENT
1	108-0184SP	Filter Pan No Rollers July 2008 (Use 106-3796SP Pan with Rollers)
2	810-3161	Crumb Tray
*	813-0568	Plug, ⅛" Socket-head Pipe
3	826-1372	Nut, Grip ¼-20 Hex (pkg. of 10)
*	826-1392	O-ring
4	810-2198	Roller, Filter Pan Rail
*	809-1025	Nylon Slides
*	826-2603	Rail Set, Filter Pan Rail
*	826-1979	Kit, Filter Pan Roller
*	809-0191	Washer, Spring Lock, ¼"
5	812-2024	Screen, Sana Grid
6	810-3760	Ring, Hold Down *(810-2910, FMP, see also 810-3760)*
7	823-6412	Lid, Filter Pan, FPP *(included in kit 826-2109, 826-2110, and 826-2111)*
*	823-5334	Lid, Filter Pan, FMPH
8	823-5294	Splash Shield *(included in kit 826-2109, 826-2110, and 826-2111)*
9	106-5141	Bracket, Burner Heat Shield Mounting (MJ35)
10	809-0173	Clip, Tinnerman *(included in kits 826-2109, 826-2110, and 826-2111)*
11	200-9732	Lip, Suction Fitting *(included in kits 826-2109, 826-2110, and 826-2111)*
12	200-9715	Brace, Drain Spout *(included in kits 826-2110 and 826-2111)*
13	826-1371	Screw, #8 x ½" Hex Head Drill Point (pkg. of 25)
14	809-0785	Screw, #14 x ¾" Slotted Head
*	200-6310	Support, Rear Pan Rail
*	809-0743	Screw, 4-40 x 1 Pan Head, Stainless Steel
*	803-0170	Filter Paper, 19.5 x 25.5 (box of 100 sheets)
*	803-0002	Filter Powder (box of 80 individual packs)
*	810-2800	Carl's Jr. Filter Leaf
*	816-0757	O-ring, Optional Filter Leaf

* Not illustrated.

2.12 Frypots



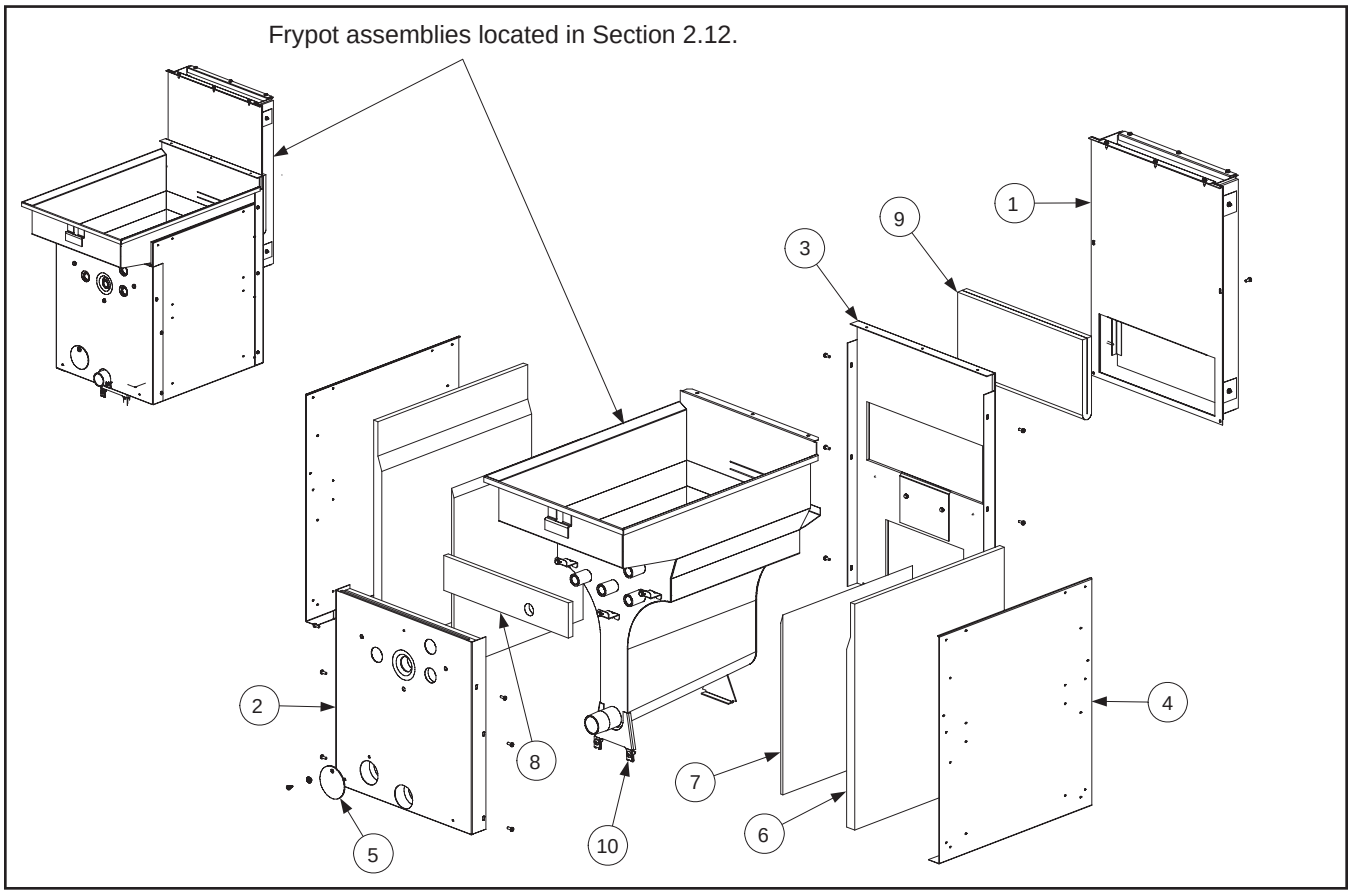
ITEM	PART #	COMPONENT
		PMJ 35
1	106-4115SP	Full-vat, Stainless Steel, (Power Shower)
*	106-9776	Full-vat, Stainless Steel, Single Non-filter For XMJ135V
*	823-4492SP	Full-vat, Stainless Steel (Pre-Pro MJ35)
2	106-8362SP	Full-vat, Stainless Steel (Front Flush) Service Part
*	106-7671SP	Full-vat, Stainless Steel (Power Shower) Export
*	106-9727SP	Full-vat, Stainless Steel (PMJ) Non-Filter Service Part
*	106-8363SP	Full-vat, Stainless Steel (Domestic, Power Shower) Service Part
		PMJ 45
3	106-2547SP	Full-vat, Stainless Steel (Power Shower) Service Part FP47 only
4	106-2545SP	Dual-vat, Stainless Steel FP47
5	106-5868SP	Full-vat, Stainless Steel (Front Flush) Service Part FPP45
6	106-5869	Dual-vat, Stainless Steel (Front Flush)
*	106-7681SP	Full-vat, Stainless Steel (Power Shower) Service Part FPP45
*	106-7740	Dual-vat, Stainless Steel (CE)

* Not illustrated.

** Frypots listed above include insualtion and other necessary components. See Section 2.13.

2.13 Frypot Cabinetry

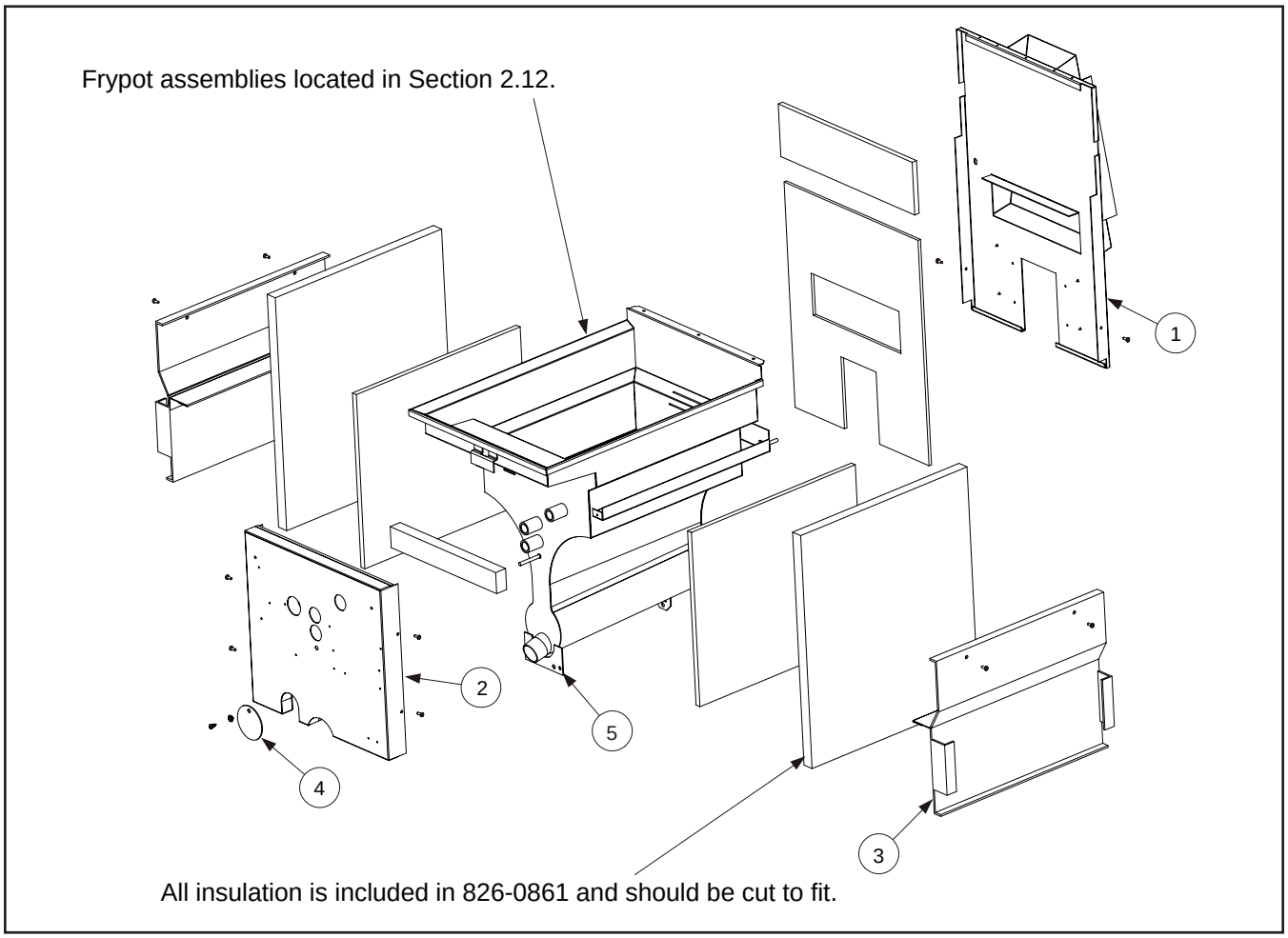
2.13.1 PMJ45 Frypot Cabinetry



ITEM	PART #	COMPONENT
1	806-5778SP	Flue Deflector Box Assembly
2	826-1374	Screw, #10 x ½" Washer Hex Head
3	806-5567SP	Flue Assembly, MJ45
4	806-1095SP	Front Baffle Assembly
*	106-5874	Front Baffle Assembly (Front Flush Full-vat)
*	106-5892	Front Baffle Assembly (Front Flush Dual-vat)
5	809-0409	Screw, Pilot Light Cover
6	810-0647	Holder, Pilot Light Cover Screw
7	108-0442	Cover with Sight-glass, Pilot Light *(without sight-glass, 900-1090)*
8	806-5566SP	Rear Combustion Chamber Panel Assembly
9	806-1097	Side Combustion Chamber Panel Assembly
10-13	826-0861	Kit, Insulation (*cut to fit*)
*	816-0658	Insulation Back, Lower Single
*	816-0656	Insulaiton Back, Upper Single
14	809-0173	Clip, Tinnerman
15	809-0170	Screw, #14 x ¾" Slotted Pan Head
*	210-0681	Probe Guard
*	816-0698	Insulation, Kaowool Blanket (Front Flush)
*	220-0927	Air/Heat Shield, 31"
*	220-0928	Air/Heat Shield, 15 ½"
*	813-0463	Pipe Plug, 1/2" NPT

* Not illustrated.

2.13.2 PMJ35 Frypot Cabinetry

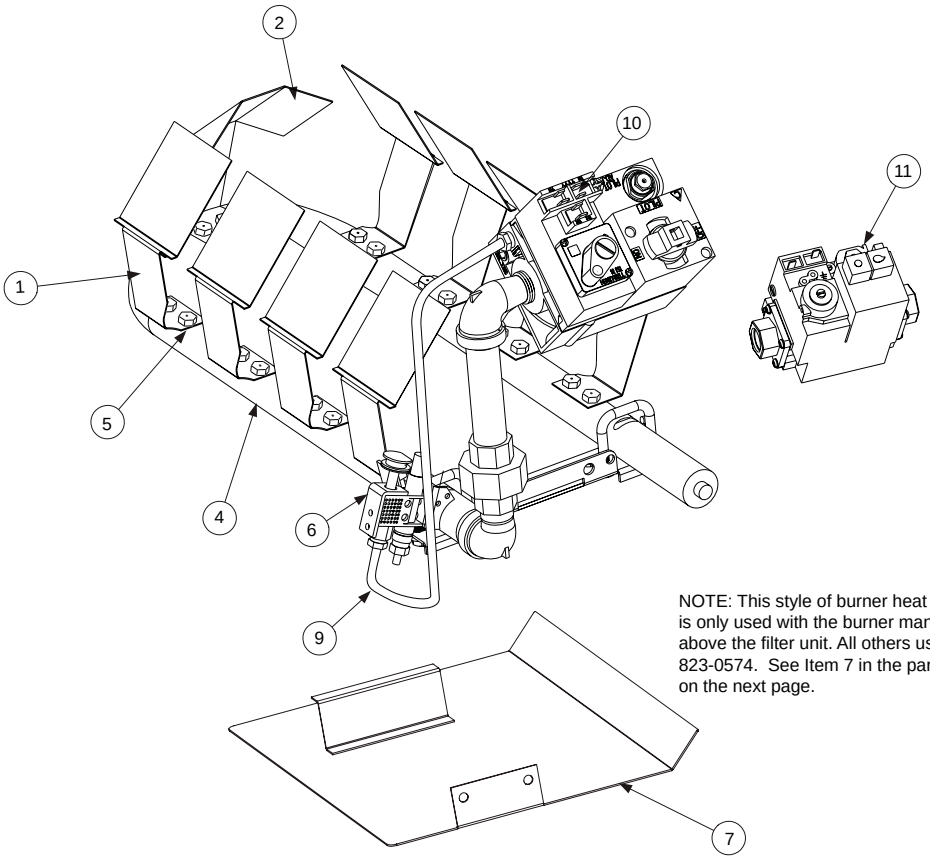


ITEM	PART #	COMPONENT
1	106-8274SP	Flue Assembly, MJ35
2	900-3267	Flue Deflector Box Assembly
3	806-4168SP	Combustion Chamber, Front
*	806-4168	Front Baffle Assembly (Front Flush Full-vat)
4	809-0409	Screw, Pilot Light Cover
5	810-0647	Holder, Pilot Light Cover Screw
6	108-0442	Cover with Sight-glass, Pilot Light *(without sight-glass, 900-1090)*
7	900-6204	Combustion Chamber, Side
*	826-0861	Kit, Insulation *(cut to fit)*
*	812-0134	Insulation, Frypot Upper Side
*	816-0658	Insulation, Frypot Lower Back *(Singles)*
*	816-0656	Insulation, Frypot Upper Back *(Singles)*
8	826-1374	Screw, #10 x ½" Washer Hex Head
9	809-0173	Clip, Tinnerman
10	809-0170	Screw, #14 x ¾" Slotted Pan Head
*	210-0681	Probe Guard
*	220-0927	Air/Heat Shield, 31"
*	220-0928	Air/Heat Shield, 15 ½"

* Not illustrated.

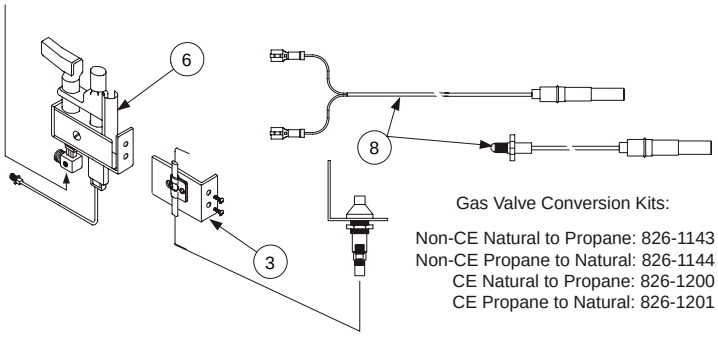
2.14 Gas Valves and Burners

2.14.1 PMJ45 Gas Valves and Burners



NOTE: This style of burner heat shield is only used with the burner manifold above the filter unit. All others use 823-0574. See Item 7 in the parts list on the next page.

NOTE: *Red dot* indicates propane/ butane pilot assembly; *green dot* indicates manufactured gas; *no dot* indicates natural gas.



Gas Valve Conversion Kits:

Non-CE Natural to Propane: 826-1143
Non-CE Propane to Natural: 826-1144
CE Natural to Propane: 826-1200
CE Propane to Natural: 826-1201

ITEM	PART #	COMPONENT
1	230-1177	Metal Deflector (Target) Sides, Individual
2	230-1206	Metal Deflector (Target) Rear, Individual
*		Ignitors *(see Section 2.14.3)*
3	826-1155	Ignitor Kit, Optional Piezo
4		**Burner Manifold**
	810-2710	FV
	810-2708	DV, Left Side
	810-2709	DV, Right Side
*	810-0691	Tube, Vent *(CE, 810-1166)*

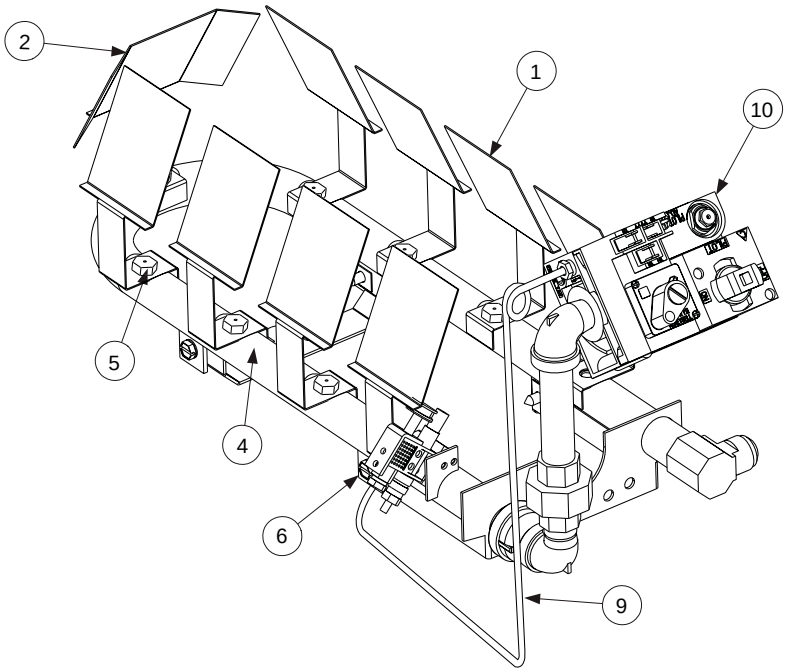
* Not illustrated.

MJ45 Gas Valves and Burners *continued on next page*

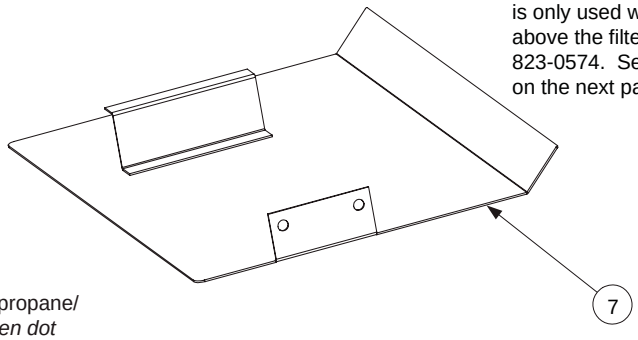
ITEM	PART #	COMPONENT
5		**Orifices** *(for high altitude and special gasses, contact Frymaster)*
	826-1357	1.45 mm, Natural Gas (pkg. of 10)
	826-1387	.86 mm, Propane/Butane Gas (pkg. of 10)
	810-0407	2.15 mm, Manufactured Gas
	812-1203	1.00 mm, Butane Gas
6		**Pilot Assemblies, Non-CE**
	810-1873	Natural Gas with Thermopile (Twin Push-on Terminals)
	807-3485	Natural Gas with Thermopile (Twin Spade Terminals)
	106-1909SP	Pro./But. Gas with Thermopile (Twin Spade Terminals)
		Pilot Assemblies, CE and Export
	806-8688SP	Natural Gas with Thermocouple (Co-axial Lead)
	106-9570	Natural Gas with Thermocouple Australia (Co-axial Lead)
	106-1911	Natural Gas, Australian (Co-axial Lead)
	810-2071	Natural Gas, mV
	806-8689SP	Pro./But. Gas with Thermocouple (Co-axial Lead)
	106-9571	Pro./But. Gas with Thermocouple, Australia (Co-axial Lead)
	106-1912	Pro./But. Gas, Australian (Co-axial Lead)
	810-2070	Pro./But. Gas, mV
7		**Burner Heat Shield Assemblies**
	823-5295	Filter Burner Position, Left (*includes bracket, 210-9729)*
	823-5296	Filter Burner Position, Right (*includes bracket, 210-9729)*
	823-0574	Non-Filter Burner Position (*includes bracket, 930-0075)*
	826-2109	Kit, Retrofit Filter Lid *(includes 823-5295 and 823-5296, see Page 2-29)*
	826-2110	Kit, Retrofit Filter Lid, LH Spreader *(includes 823-5295, see Page 2-29)*
	826-2111	Kit, Retrofit Filter Lid, RH Spreader *(includes 823-5295, see Page 2-29)*
8		**Thermopile/Thermocouple**
	810-2007	Pilot, Natural Gas, Honeywell
	810-2022	Pilot, LP Gas, Honeywell
	807-3485	Thermopile, Generator with Adaptor *(for use with 810-2007 & 810-2022)*
	810-1873	Thermopile 1TT, Spade Terminals (Non-CE Pilot Assemblies)
	810-3442	Thermocouple Assembly (CE)
	826-1527	Kit, Thermocouple with Adapter (CE Pilot Assemblies)
	810-1723	Thermocouple Adapter (CE Pilot Assemblies)
9	810-0705	Tube, Pilot Gas *(Use with all burner assemblies except Hong Kong export units.)*
	812-0278	Tube, Pilot Gas *(Use with Hong Kong export units only.)*
10		**Gas Valves, Non-CE** *(see Note 1 below)*
	807-1603	mV Natural Gas
	807-4137	mV Natural, Australia (Requires kit 807-1846 to use Propane)
	807-1604	mV Propane Gas
	807-3294	24V Natural Gas (for 240V, use 807-0025)
	807-3295	24V Propane Gas (for 240V, use 807-0759)
	810-0786	E. I. Natural
	810-0787	E. I. Propane
11		**Gas Valves, CE**
	806-6710	24V Natural Gas *(see Note 2 below)*
	806-6711	24V Propane Gas *(see Note 2 below)*
	806-7101	mV Natural Gas
	806-7102	mV Propane Gas
*		**Mount Assembly** *(Ignitor, Electrode/Flame Sensor, Mount Plate)*
	806-5895	Natural Gas, Right
	806-5896	Natural Gas, Left
	806-5897	Pro./But. Gas, Right
	806-5894	Pro./But. Gas, Left
*	806-4781	Capacitor
*	810-1183	Tee, ¼" Brass Compression
*	826-2554	Millivolt Switch

NOTES: 1. A gas valve capacitor (P/N 806-4781) is required on gas valves used on units with thermostat controllers. **2.** An adapter kit (P/N 812-1256SP) is required to connect the high-limit thermostat to Item 1I. It is included with Item 6 on Page 2-40.

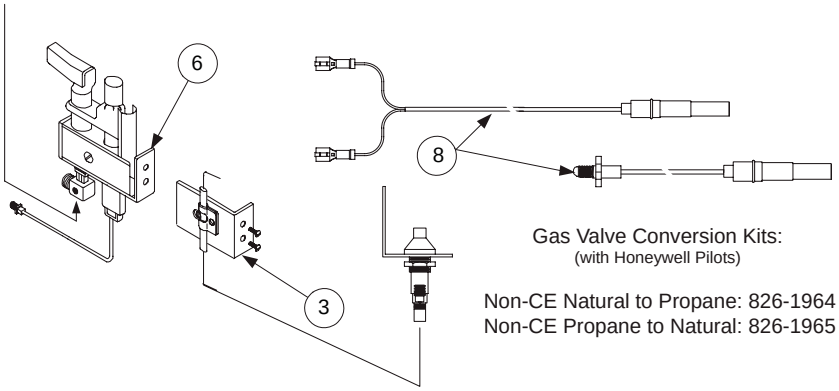
2.14.2 PMJ35 Gas Valves and Burners



NOTE: This style of burner heat shield is only used with the burner manifold above the filter unit. All others use 823-0574. See Item 7 in the parts list on the next page.



NOTE: *Red dot* indicates propane/ butane pilot assembly; *green dot* indicates manufactured gas; *no dot* indicates natural gas.



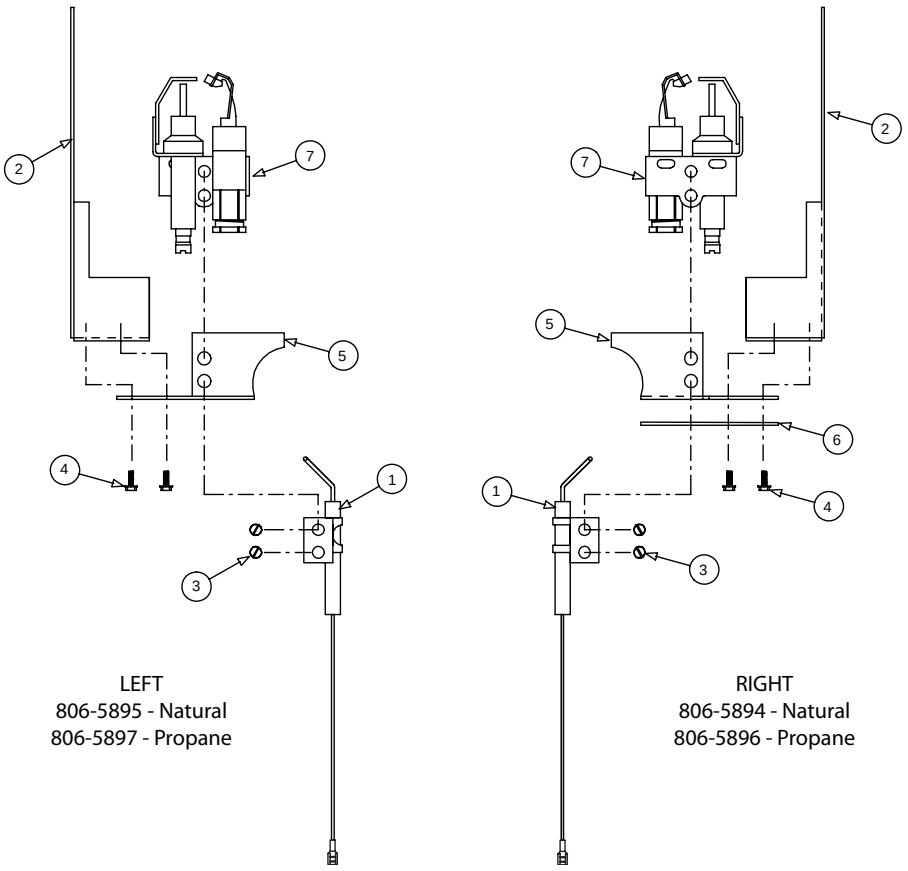
Gas Valve Conversion Kits:
(with Honeywell Pilots)

Non-CE Natural to Propane: 826-1964
Non-CE Propane to Natural: 826-1965

ITEM	PART #	COMPONENT
1	230-1178	Metal Target Sides, Individual
2	230-1180	Metal Target Rear, Individual
		Ignitor *(see Section 2.14.3)*
3	826-1155	Ignitor Kit, Optional Piezo
	810-1001	Trigger/Ignitor
	807-1906	Electrode Assembly
4	810-1862	Burner Manifold, Full-vat *(full assembly including targets, 106-5075SP)*
5		**Orifices** *(for high altitude and special gasses contact Frymaster)*
	826-1353	1.7 mm, Natural Gas (pkg. of 10)
	826-1354	1.05 mm, Propane/Butane Gas (pkg. of 10)
	810-0407	2.15 mm, Manufactured Gas
	812-1203	1.00 mm, Butane Gas
6		**Pilot Assemblies, Non-CE**
	810-1830	Natural Gas with Thermopile (Twin Push-on Terminals, 45) (Pro- 810-7773)
6A	106-1908SP	Natural Gas with Thermopile (Twin Spade Terminals, 35)
6B	106-1909SP	Pro./But. Gas with Thermopile (Twin Spade Terminals, 35)
	810-0426	Natural Gas - Pilot Only (MJ45)
	810-0427	Pro./But Gas - Pilot Only (MJ45)
		Pilot Assemblies, CE and Export
	806-8688SP	Natural Gas with Thermocouple (Co-axial Lead)
	106-9570	Natural Gas with Thermocouple Australia (Co-axial Lead)
	106-1911	Natural Gas, Australian (Co-axial Lead)
	810-2071	Natural Gas, mV
	806-8689SP	Pro./But. Gas with Thermocouple (Co-axial Lead)
	106-9571	Pro./But. Gas with Thermocouple, Australia (Co-axial Lead)
	106-1912	Pro./But. Gas, Australian (Co-axial Lead)
	810-2070	Pro./But. Gas, mV
		Burner Heat Shield Assemblies
7	823-5295	Filter Burner Position, Left (*includes bracket, 210-9729)*
	823-5296	Filter Burner Position, Right (*includes bracket, 210-9729)*
	823-0574	Non-filter Burner Position (*includes bracket, 930-0075)*
	826-2109	Kit, Retrofit Filter Lid *(includes 823-5295 and 823-5296, see Page 2-29)*
	826-2110	Kit, Retrofit Filter Lid, LH Spreader *(includes 823-5295, see Page 2-29)*
	826-2111	Kit, Retrofit Filter Lid, RH Spreader *(includes 823-5295, see Page 2-29)*
8		**Thermopile/Thermocouple**
	810-2007	Pilot, Natural Gas
	810-2022	Pilot, LP Gas
	807-3485	Thermopile, Generator with Adaptor *(for use with 810-2007, 810-2022) PMJ35*
	810-1873	Thermopile 1TT (Non-CE Pilot Assemblies, push on terminals) PMJ45
9	810-0705	Tube, Pilot Gas *(Use with all burner assemblies except Hong Kong export units.)*
	812-0278	Tube, Pilot Gas *(Use with Hong Kong export units only.)*
10		**Gas Valves, Non-CE** *(see note below)*
	807-1603	mV Natural Gas
	807-4137	mV Natural Gas (Australia) also requires kit 807-1846
	807-1604	mV Propane Gas
	807-3294	24V Natural Gas (for 240V, use 807-0025)
	807-3295	24V Propane Gas (for 240V, use 807-0759)
	810-0786	E. I. Natural
	810-0787	E. I. Propane
*	810-0691	Tube, Vent

NOTE: A gas valve capacitor (P/N 806-4781) is required on gas valves used on units with thermostat controllers.

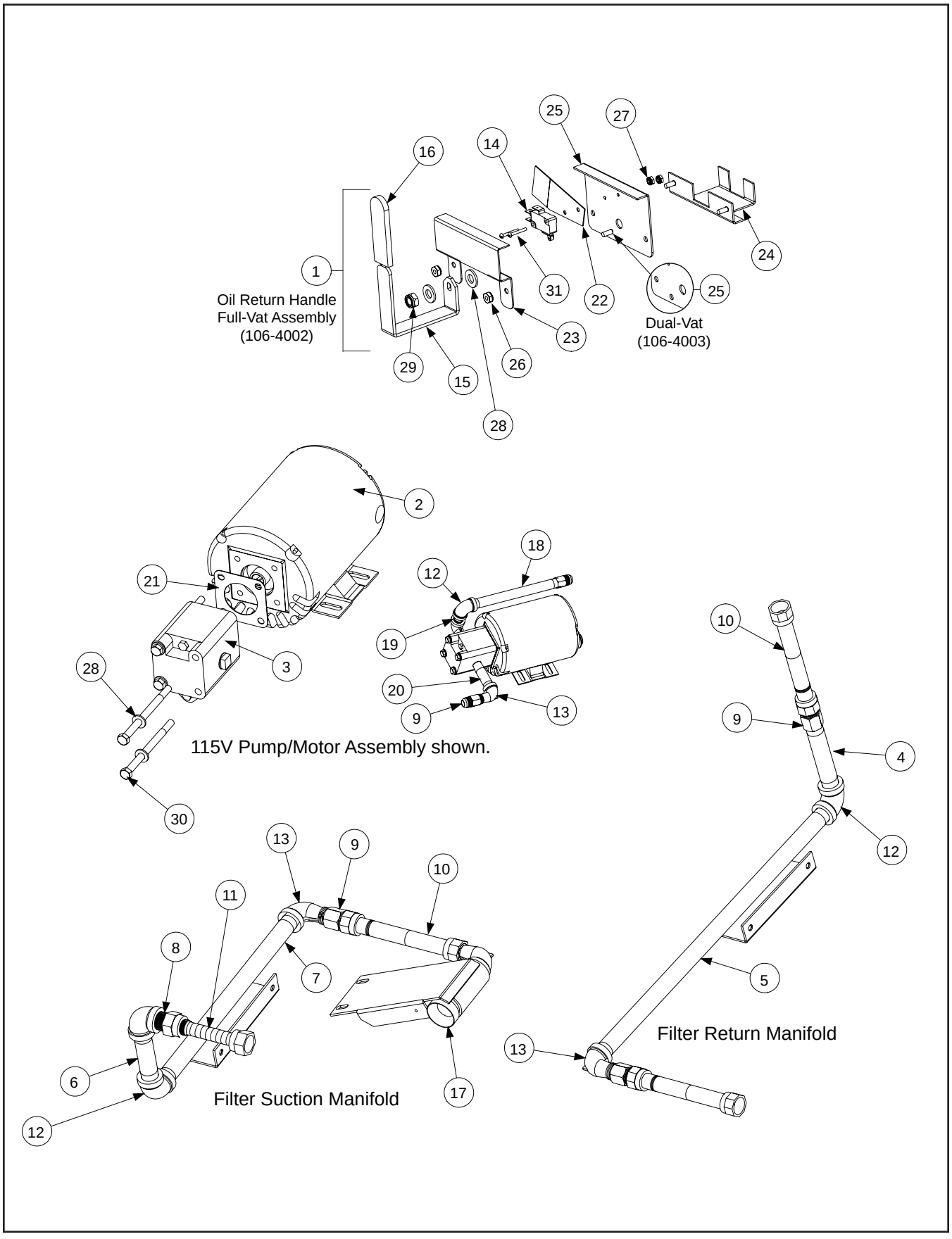
2.14.3 Ignitors



ITEM	PART #	COMPONENT
1	807-1928	Flame Sensor Electrode
2	910-2077	Pilot Mount
3	809-0121	Screw, 10-32 x ½" Hex Head
4	809-0500	Screw, Stainless Steel #10 x ½" Hex Head Washer
5		Plate, Pilot
	910-2078	Left
	910-2079	Right
6	910-2080	Heat Shield
7		Ignitor
	807-1707	Natural
	807-1708	Propane

* Not illustrated.

2.15 Oil Return Components



ITEM	PART #	COMPONENT
1		**Handle Assemblies, Oil Return Valve**
	106-4002SP	FV Oil Return Assembly, MJ45
	106-4003SP	DV Oil Return Assembly, MJ45
	106-9265SP	FV Oil Return Assembly, MJ 35
2		**Pump and Motor**
	826-1712	100-120V, 60 Hz *(motor and gasket)*
	826-1756	208V, 50/60 Hz *(motor and gasket)*
	826-1270	230V, 50/60 Hz *(motor and gasket)*
	826-1755	250V, 50/60 Hz *(motor and gasket)*
3	826-1264	Pump, Viking 4 GPM 2-piece
	106-3987	**Filter Return Manifold** *(see additional components below)*
4	813-0251	Nipple, ½" x 3.5 BM
5	823-4739	Bracket, Suction Nipple
	106-3986	**Filter Suction Manifold** *(see additional components below)*
6	813-0247	Nipple, ½" x 3.5 BM
7	823-4737	Bracket, Suction Nipple
8	810-1668	Adapter, Male
*	810-1339	Flexline, 4.5"
		Included with Filter Return/Suction Manifolds
9	810-1669	Adapter, Female
10	810-1680	Flexline, 6.5"
11	810-1160	Flexline, ⅝" x 3"
12	813-0062	Elbow, ½" 90° BM
13	813-0165	Elbow, Street ½" NPT BM
		Oil Return Handle
14	807-2104	Microswitch *(included with Item 1)*
15	200-9065	Handle *(included with Item 1, MJ45)*
*	220-4357	Handle *(included with Item 1, MJ35)*
16	816-0644	Grip *(included with Item 1)*
		Miscellaneous
*	811-0746	Aluminum Tape *(150' roll)*
*	811-0861	Foam Tape *(sold by the foot)*
*	807-1472	Heater Strip 120V-40W 56" *(for 120V fryers)*
*	807-1473	Heater Strip 240V-70W 56" *(for 208-240V fryers)*
		Heater Tape
*	806-8065	100V, 25W, 18"
*	806-5933	120V, 25W, 18"
*	806-9245	120V, 25W, 36"
*	806-6731	120V, 40W, 56"
*	806-5934	208/240V, 25W, 18"
*	106-5768	250V, 25W, 18"
*	106-5849	250V, 45W, 36"
*	806-6733	250V, 70W, 56"
*	106-5011	Extension Harness
*	826-2100	Kit, Retrofit 120V Heater
17	823-4743	Connector, Female Suction
*	813-0156	Pipe Plug, ½"
*	810-1003	Valve, 180° 3-way Ball
*	807-2484	Valve, Solenoid Vent
*	811-0932	Tubing, Teflon
18	813-0275	Nipple, ½" x 9 NPT BM Pipe
19	813-0087	Nipple, ½" x 1.5 NPT BM Pipe
20	813-0460	Nipple, ½" x 3 NPT BM Pipe

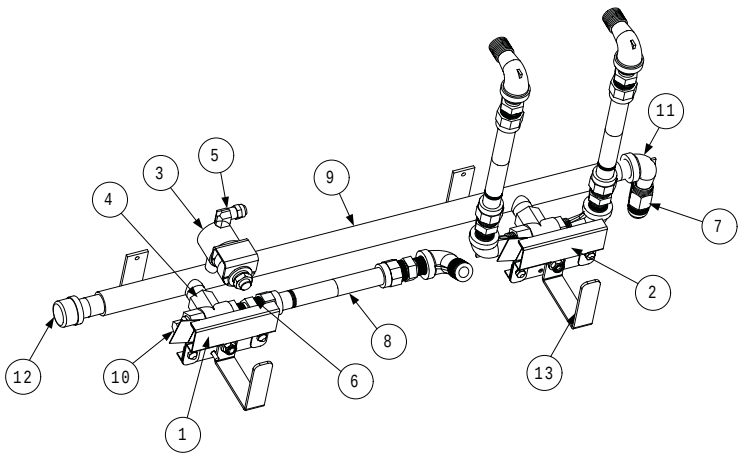
* Not illustrated.

***Oil Return Components** continued on next page . . .*

ITEM	PART #	COMPONENT
21	816-0093	Gasket, Pump and Motor
22	816-0220	Insulation, Drain Safety Box *(included with Item 1)*
23	900-2110	Cover, Oil Return Microswitch *(included with Item 1)*
24	806-8342	Support, Oil Return Valve *(included with Item 1)*
25		Support, Microswitch Mount *(included with Item 1)*
	806-9385	Full-vat
	900-2112	Dual-vat
26	826-1376	Nut, 10-32 Keps Hex (pkg. of 10)
27	826-1366	Nut, 4-40 Keps Hex with External Tooth (pkg. of 25)
28	809-0194	Washer, Flat 5/16" SAE
29	809-0056	Nut, 5/16"-18 Hex
30	809-0514	Capscrew, 5/16"-18NC Hex SAE
*	WIR0220	Pump Wiring Assembly
31	826-1359	Screw, 4-40 x ¾" Keps Hex (pkg. of 25)
*		Kit, Heater Tape Retrofit
	826-2118	Kit, 100 VAC
	826-2119	Kit, 120 VAC
	826-2120	Kit, 220/240 VAC
	826-2121	Kit, 250 VAC

* Not illustrated.

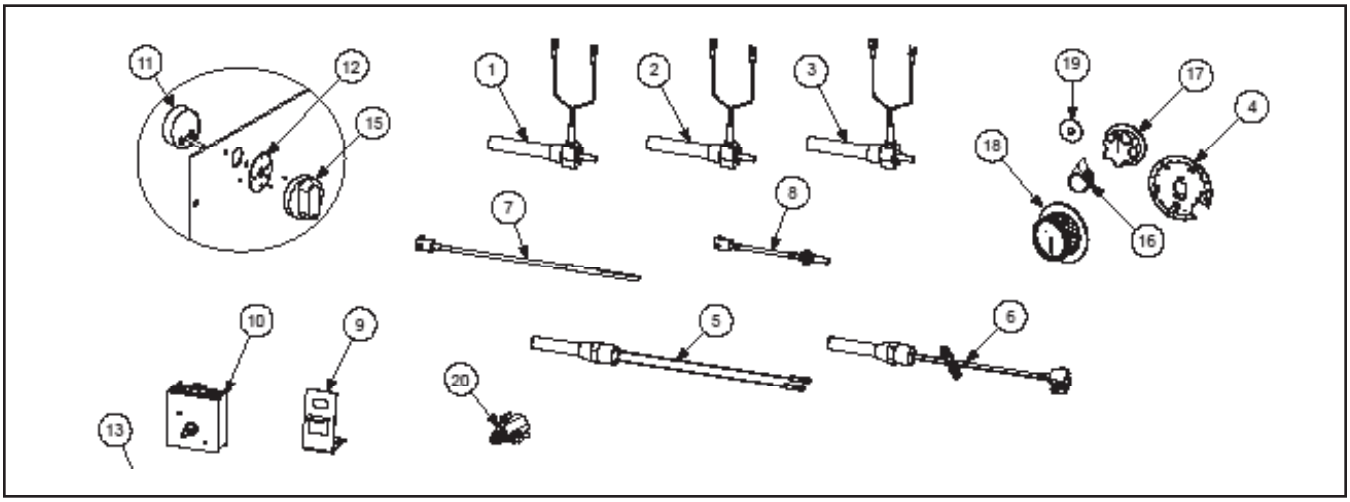
2.16 Oil Return Assembly



ITEM	PART #	COMPONENT
1	106-4002	Valve Assembly, Full-vat
2	106-4003	Valve Assembly, Dual-vat
3	807-2484	Valve, Solenoid, ¼" NPT
4	810-1003	180° 3-way Valve
5	810-1372	Fitting, 90° ¼" NPT, ⅜" Tube
6	810-1668	Adaptor, Male, ⅝" OD x ½"
7	810-1669	Adaptor, Female, ⅞" OD x ½"
8	810-1680	Flexline, ⅝" OD x 6.5" Long
9	810-2791	Manifold, Oil Return
10	813-0156	Plug, ½", Hex Head BM
11	813-0165	Elbow, Street, ½" x ½" NPT, 90° BM
12	813-0469	Cap, Pipe, ½" BM
13	816-0644	Grip, Yellow

* Not illustrated.

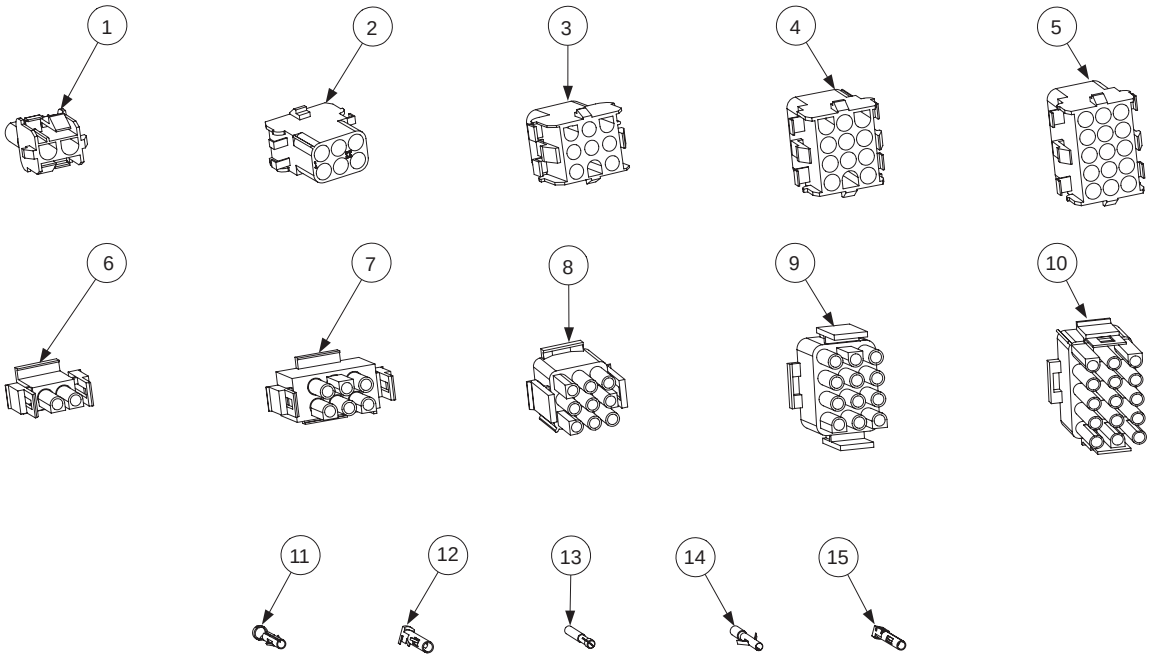
2.17 Thermostats and Timers



ITEM	PART #	COMPONENT
		Operating Thermostat Assembly, Fenwall
1	806-0183	With Two Blue Insulated Push-on Terminals, 4" (MJ35 & 45, Non-CE)
2	806-5816	With One Wire Push-on, One Fork Terminal, 3" (MJ35, Non-CE)
*	806-7972	With One Wire Push-on, One Fork Terminal, 3" (MJ35, CE)
*	106-7036	With One Wire Push-on, One Fork Terminal, 4" (MJ45, CE)
3	806-9617	With One Blue Insulated Push-on, One Fork Terminal, 4" (MJ35 & 45, CE)
4	806-0087SP	Thermostat Dial Plate Assembly
		High-Limit Thermostat
5	826-1177	425°F High-limit (Non-CE)
6	806-7550	218°C High-limit (CE; includes adapter for gas valve hookup. See note on Page 2-34.)
		Flex Shaft
*	810-0999	Flex Shaft, Control Panel Mount Assembly, 9 ¼" overall
7	810-0345	Shaft, 7.25" Thermostat Flexible Extension
8	810-1651	Shaft, 5.50" Thermostat Flexible Extension
*	810-0276	Shaft, 2.25" Thermostat Flexible Extension
9	900-2071	Mounting Bracket
		Timers, Basket Lift
10	826-2698	15-minute Electronic Timer, Single
*	826-2699	15-minute Electronic Timer, Multi-vat System
11	810-0585	15-minute Mechanical Timer
12	910-1551	15-minute Mechanical Timer Bezel
		Knobs
13	810-0387	Knob, Control, Solid State Controller
14	826-1395	Plug Button (pkg. of 10)
15	810-1287	Knob, 15-minute Mechanical Timer
16	810-0110	Knob, Fenwal Thermostat with Two Allenhead Screws
17	810-0334	Knob, with Skirt
*	810-0388	Knob, 1" Black
*	826-1575	Kit, Retrofit 5-minute Timer
18	807-4134	Butterfly/Envelope Adapter (CE; *included in 810-3442*)
*	106-4386SP	Toggle Switch, Optional
*	806-4206	Temperature Probe
*	210-0681	Probe Guard

* Not illustrated.

2.18 Wiring Harnesses, Pin Terminals, and Power Cords



ITEM	PART #	COMPONENT
		Connectors
1	807-1068	2-pin Female
2	807-0158	6-pin Female
3	807-0156	9-pin Female
4	807-0159	12-pin Female
5	807-0875	15-pin Female
6	807-1067	2-pin Male
7	807-0157	6-pin Male
8	807-0155	9-pin Male
9	807-0160	12-pin Male
10	807-0804	15-pin Male
11	826-1332	Terminal, Female Split Pin (pkg. of 25)
12	826-1333	Terminal, Male Split Pin (pkg. of 25)
13	807-2518	Plug, Mate-N-Lock (Dummy Pin)
14	826-1331	Terminal, M&L Female Split Pin (pkg. of 25)
15	826-1336	Terminal, M&L Male Split Pin (pkg. of 25)
*	807-0154	Cord Set (Power Cord)

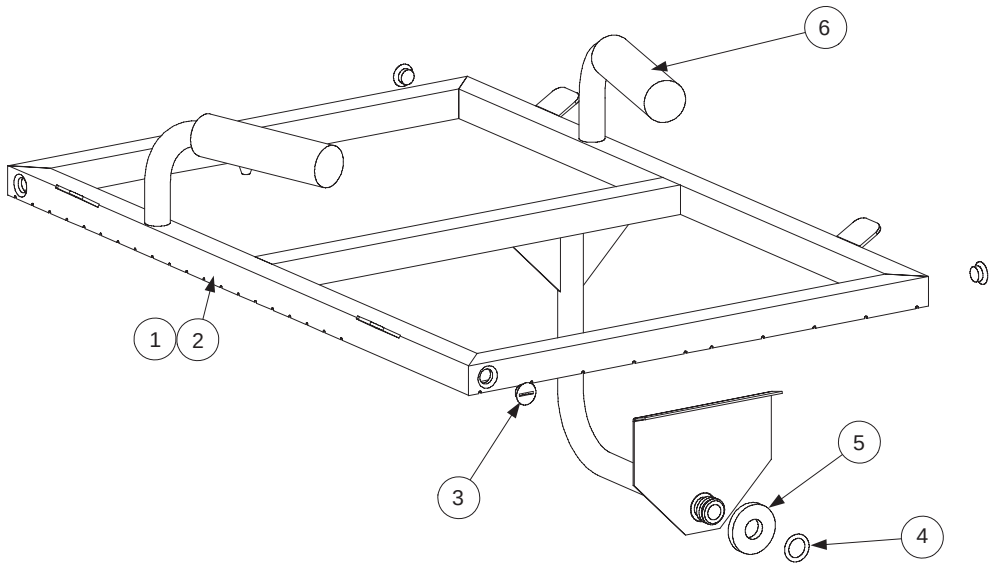
* Not illustrated.

2.19 Garland Range (S35) Parts

ITEM	PART #	COMPONENT
		Cabinetry
*	806-6741	Cabinet Assembly, H35
*	900-2266	Cabinet, Back/Upper
*	823-2282	Fluecap
*	824-0517	Topcap
*	806-6765	Door Assembly
*	806-3943SP	Frypot Assembly
*	106-4430	Flue Assembly
*	810-1195	Top Back Guard
*	806-6985	Wiring Harness
*	810-1306	1/2” Brass Manual Gas Valve
*	KIT1653	Garland Piezo Ignitor Kit

* Not illustrated.

2.20 Power Shower



ITEM	PART #	COMPONENT
		Power Shower Assembly
	806-4542SP	MJ35
	806-4503SP	MJ45
		Components
1	823-1522	Power Shower Body, MJ35
2	823-1485	Power Shower Body, MJ45
3	809-0415	Screw, Clean-out
4	826-1344	O-ring
5	826-1390	Seal
6	814-0001	Grip

Frymaster, L.L.C., 8700 Line Avenue, Shreveport, Louisiana 71106

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